

# **DAMAGE CONTROL TRAINING TEAM BEST PRACTICES**

## **AFLOAT TRAINING GROUP**



Rev: 29 MAR 2001

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## SECTION ONE INTRODUCTION

### **Afloat Training Group Mission:**

Assist in training shipboard personnel in damage control readiness. Training of personnel and training teams will be conducted both in port and underway during damage control scenarios.

Concept of operation, the emphasis of training will be to train the trainers. However, special team training will be conducted as required.

### **Objectives for Damage Control Training:**

#### **a. DCTT:**

- 1) Writing and conducting various damage control exercises.
- 2) Develop the ability to meet training objectives as briefed.
- 3) Develop the ability to assess repair parties in all DC exercises.
- 4) Develop the ability to assess the setting of material conditions.
- 5) Develop the ability to recognize unsafe actions and conditions.
- 6) Develop the ability to recognize material deficiencies in damage control equipment and damage control fittings.
- 7) Develop the ability to instruct in basic damage control functions and methods.
- 8) Familiarization with basic damage control doctrine: NSTM 555, NSTM 079 Vol II, NSTM 470, NSTM 070, NSTM 077, Repair Party Manual NWP 3-20.31, COMNAVSURFLANT/ PACINST 3502.2E (SFTM), and OPNAVINST 3120.32C (SORM).
- 9) Develop the ability to brief, execute, debrief and critique damage control exercises.

#### **b. Repair Parties:**

- 1) Executing various damage control exercises.
- 2) Ensure all repair party members can don and operate SCBA's, OBA's and EEBD's.
- 3) Conduct informal inventories and inspection of repair party equipment.

- 4) Evaluate the ability to set and maintain material condition ZEBRA.
  - 5) Exercise pipe patching, shoring, dewatering and plugging teams in hands-on drills.
  - 6) Train CBR teams in proper monitoring, decontamination and contamination control procedures. Train CCA/Decon personnel in setting up and processing contaminated personnel.
- c. Damage Control Petty Officers:
- 1) Train on responsibilities for setting and maintaining material condition YOKE.
  - 2) Train on setting of YOKE.
  - 3) Train on maintenance of portable damage control equipment and compartment space inspection.
- d. Damage Control Assistant:
- 1) Train in coordinating and monitoring of repair party's actions in multiple hit damage control problems.
  - 2) Train in communicating vital information to ship control stations.
  - 3) Train in evaluating damage and setting priorities for repair actions.
  - 4) Provide with informal material deficiency assessment.
  - 5) Train in directing CBR defense postures.
- e. Inport Damage Control Teams:
- 1) Exercise in fire, underwater hull damage and toxic gas drills.
  - 2) Provide assistance away from the ship, test operation of P-250/P-100 pumps.

**Damage Control Training Team:**

A proficient DCTT is highly recommended. Members should be highly motivated and knowledgeable. It will be to your advantage to have a functioning Damage Control Training Team Program. Assignments and position qualification must be IAW COMNAVSURFLANTINST 3502.2.Series and COMNAVAIRLANT INST 3500.20. Status inputs concerning DCTT progress will be provided to your Squadron and Type Commanders. Your DCTT is a vital key to the effectiveness of the DC training you receive from ATG.

## **Damage Control Lectures and Demonstrations:**

During the Basic Phase Training Cycle, the DC Instructors will conduct lectures and demonstrations for DCTT, DCPOs and repair party personnel. Topics include: preparing for and performing YOKE and ZEBRA checks, fire fighting, pipe patching, shoring and CCA/DECON training.

## **Chemical, Biological and Radiological Defense Bill (CHEM DRILLS):**

Recommend the CBR-D Bill be reviewed for accuracy and tailored to the ship while executing CBR-D drills. **All hands should be familiar with MOPP levels and your CBR-D Bill, prior to commencement of training.**

Items recommended for training are:

ITEM	NSN
-Decontamination Kits M-291	9H 4230-01-276-1905
-Simulator, Chemical Agent: Training, M-256	9H 6665-01-112-1644
-2-PAM Chloride Training Auto Injectors	9H 6910-01-194-2227
-Cap Recocking Training Device (2-PAM)	9H 6910-01-193-5047
-Atropine Auto Injector for Training	9H 6910-01-194-0378
-Tool Recocking Training Device Injector (Atropine)	9H 6910-01-193-5045

Various sizes of the Chemical Protective Ensemble

## **DC Closure Log:**

All ships are required to prepare, maintain, and instruct personnel in the use of the DC Closure Log IAW OPNAVINST 3120.32 Series. Proper utilization of this document can aid the ship in setting material conditions and is a valuable training tool and source of information. Recommend DCTT review the Damage Control Closure Log and the Inoperative Fitting Log each time Yoke and Zebra is checked. The importance of an accurate Closure Log cannot be overlooked.

## **Officer and CPO Involvement:**

The secret to success is participation and motivation by all hands. Plan for corrective measures early in training. Gain and maintain the full support of officers, CPOs and DCTT throughout training and success will follow.

Recommend you read and become familiar with, the Surface Force Training Manual (COMNAVSURFLANT/PACINST 3502.2 Series). Familiarity with the training requirements will afford you greater flexibility in scheduling DC exercises. Another source

of information is the ATG Web Site ([www.atgl.spear.navy.mil](http://www.atgl.spear.navy.mil)). It contains compiled information and examples for writing and conducting an integrated drill scenario.

**DAMAGE CONTROL INPORT DRILLS:**

Exercises that may be conducted are:

- a. Pipe Patching (MOB-D-20-SF)
- b. Shoring (MOB-D-13-SF)
- c. Underwater Hull Phase II (MOB-D-12-SF)
- d. Rescue and Assistance (MOB-D-10-SF)
- e. Fire Extinguishing & Smoke Clearance (MOB-D-14-SF)
- f. Toxic Gas (MOB-D-31-SF)

**DAMAGE CONTROL UNDERWAY:**

Exercises that may be conducted (not all-inclusive) are Damage Control Central (DCC only):

- a. Righting Ship (MOB-D-6-SF)
- b. Emergency Interior Communications (MOB-D-4-SF)
- c. Underwater Hull Phase I (MOB-D-12-SF)
- d. Shoring (MOB-D-13-SF)
- e. Pipe Patching (MOB-D-20-SF)
- f. Topside Damage (MOB-D-5-SF)
- g. Shipwide Chemical Drill (MOB-D-15-SF) consists of:  
Evaluation of the CBR-D Bill, verification of internal and external routes, activation of the countermeasure washdown system, setting circle William, set up and inventory of the CCA/DECON stations, ship's ability to organize decontamination/monitoring teams, establish contamination control areas/decon stations and to determine self aid/buddy aid for the type of agent received, verification of summary of actions, and test crews' general knowledge of CBR-D (see CBR-D questions and answers).

**TRAINING MATERIALS:**

It is recommended that sufficient training materials be available for the duration of the Basic Phase Training Cycle. Materials such as rubber gasket material, wedges, marlin, and 2x4's for shoring may be used on a daily basis while ATG Damage Control Instructors are onboard.

## SECTION TWO

### LIST OF COMMON CCOL AND MATERIAL DISCREPANCIES:

The following list is provided to show some of the more common CCOL and material discrepancies found on U.S. Navy ships and U.S. Coast Guard cutters during material condition evaluations.

1. **NPP** Not permanently posted: CCOL holder missing, CCOL taped to the bulkhead, CCOL holder taped to the bulkhead, missing plastic cover.
2. **NCP** Not conspicuously posted: CCOL hidden behind lockers, duplicate not marked in spaces having more than 1 access, CCOL marked both as duplicate and original.
3. **NPI** Not properly itemized: numbers in the items column are missing, itemized incorrectly such as 25a, 25b, etc., Out of sequence and two numbers are the same.
4. **AFNAN** All fittings not assigned a number: classified fitting, valve, or closure not assigned a number.

**Note: Fittings, valves and closures shall be numbered by deck, frame and side of the ship with the exception of some remotely operated fittings, valves or closures.**

5. **AFNAC** All fittings not assigned a classification: fittings, valves and closures that are required to be classified are not.
6. **DRNA** Division/Repair Locker responsibility not assigned: responsibility column is blank, Circle William is assigned to a division vice a repair locker, x-ray or yoke is assigned to a repair locker instead of a division, dog zebra is not assigned dual responsibility.
7. **NPG** Not properly grouped: sequence, heading, fitting, or classed.
  - a. Sequence: Headings listed on the CCOL are not in the correct order.
  - b. Heading: Incorrect headings, (common mistakes are portable damage control fittings, miscellaneous classified and chill water).



- c. Fitting: Fittings, valves or closures are listed under the wrong heading, (JP-5 COV listed under ventilation).
  - d. Classed: Classified fittings found under the miscellaneous unclassified heading.
8. **AFNL** All fittings not listed: a fitting that is physically in the compartment is not on the CCOL.
  9. **AFLNIS** All fittings listed not in space: fittings, valves and closures listed on the CCOL, but not found in the compartment (valves removed during overhaul).
  10. **N/N** Not numbered: deck, frame and side of the ship, (except remotely operated fittings) must number fittings, valves and closures. Taped over, over 50% faded or painted over.
  11. **N/C** Not classified: classified fitting, valve, or closure is missing the classification label, taped over, over 50% faded or painted over.
  12. **Color** The classification tag on a fitting is the wrong color, (x-ray, yoke, and William are black, zebra is red, and dog is black).
  13. **NPN** Not properly numbered: fitting, valve or closure number does not match the DC number on the CCOL, actual physical location does not agree with the number assigned. (ATC 2-123-2 is located at frame 118)
  14. **M/C** Misclassified: classification of fitting, valve or closure does not match the classification on the CCOL.

**Note: In checking material conditions we consider the CCOL to be correct, this does not mean it is. CCOLs should be verified against the ships' damage control book/charts.**

15. **D/C** Dual classified: fitting, valve or closure is assigned more than one classification.
16. **D/N** Dual numbered: fitting, valve or closure is assigned more than one number.
17. **OOA** Out of adjustment: dogs on fittings not adjusted properly.
18. **ILP** Incorrect label plate: the label plate above accesses will have the fitting number, noun name and compartment entering.

19. **NLP** No label plate.
20. **Bullseye** A bull's eye should be visible from each access to the space. The lettering will be 2 inches high painted over a 12 in x 15 in wide photoluminscent painted area, (not photoluminscent if in a space leading to the exterior). Compartment number on the bullseye must match the CCOL, the frames that bound the space and the division responsible must be on the bullseye.

Example:

**2-110-1-1**

**110-120**

**R**

21. **Deck plate markings:** The inscribing of deck plate covers such, as sounding tube caps, shall be IAW drawing navships # 810-1385848. In addition, a label plate having the same inscription content as the deck plate cover, shall be mounted on the nearest adjacent bulkhead, stanchion or other permanent structure at a distance not less than 12 inches, and greater than 36 inches above the deck. The first line of the plate inscription shall be the deck plate basic location number, the second line shall identify the system function, and the third line shall indicate the number of the tank or void.

Example

**2-97-2**

**SOUNDING**

**2-98-2-V**

- NOTE:**
1. Damage Control label plates shall be manufactured in accordance with GENSPECS and NSTM 079 VOL II. Allowance for use of replacement material (bake-lite) will be in accordance with Damage Control Advisory # 16 DTG R200345Z NOV 97.
  2. Firestation Bullseyes shall be posted in accordance with NSTM 079 VOL II. Allowance for the use of photoluminscent and reflective signs will be in accordance with COMNAVSEASYS COM WASHINGTON DC/03G MESSAGE. DTG R 100320Z.

## **Material Conditions of Readiness:**

**Modified YOKE (Y)** Condition YOKE may be modified (reduced in stringency) during normal working hours at sea in good visibility during peacetime cruising. In modified material condition YOKE, XRAY and YOKE closures and fittings below the waterline are closed. YOKE closures and fittings above the waterline may be left open to improve accessibility and habitability.

**ZEBRA (Z)** Material condition ZEBRA is set during General Quarters. It is also set when the ship is leaving or entering port during wartime or at any time the ship is in a damaging situation such as that caused by fire or flooding. Closures and fittings classified ZEBRA are labeled with a red letter Z. When material condition ZEBRA is set closures and fittings classified XRAY, Y, and Z are set.

**COMPARTMENTATION AND SYSTEM SEGREGATION** Ships are designed and constructed to provide for increasing degrees of effective compartmentation and system segregation through systematic shutting of increasing numbers of closures and fittings. To allow use of the given compartmentation to its greatest advantage, all closures and fittings in tight decks, bulkheads, piping systems and ventilation systems that have damage control value are classified and marked with their classification.

**CLOSURES AND FITTINGS** Closures are defined as closable openings in overheads, decks and bulkheads for access by personnel. Fittings are covers, valves, caps and plugs for access other than for personnel and for control of fluid flow. They may be on or in piping and ventilation systems or in overheads, decks and bulkheads. For brevity, where context allows, the term fitting is used to include the meaning of both fitting and closure and the term compartmentation is used to include both structural and fluid system segregation.

**THREE-CONDITION SHIPS** Naval Sea Systems Command (NAVSEA) designs ships to have three material conditions of readiness. These conditions provide three progressive stages of compartmentation of the ship. Ships maintain different material conditions of readiness according to whether contact with an enemy (or natural hazard such as wind or waves) is improbable, probable or potentially imminent. The basic material conditions of readiness through which all ships progress are XRAY, YOKE, and ZEBRA. These three material conditions of readiness provide increasing degrees of protection against the spread of fire, flooding, smoke, dangerous fumes and gases and chemical, biological, and radiological (CBR) agents. Material condition XRAY provides the lowest degree of compartmentation and therefore of protection. YOKE provides a higher degree than XRAY. Condition ZEBRA provides the highest degree of protection. ZEBRA is said to be a higher classification than YOKE, and YOKE higher than XRAY. In addition, there are six special classifications (Circle XRAY, Circle YOKE, Circle ZEBRA, Dog ZEBRA, WILLIAM, and Circle WILLIAM). These conditions are further defined and described in the following paragraphs.

**XRAY (X)** Material condition XRAY is set when the ship is in almost no danger of attack or natural hazard, as when it is in a well-protected harbor or secured at home base, in fair weather, during normal working hours. All closures and fittings classified XRAY, even when logged open, should be closed at all times when they are not in actual operation. They are labeled with a black letter X.

**YOKE (Y)** Material condition YOKE is set and maintained at sea, when entering or leaving port during peacetime, in port outside of normal working hours during peacetime, and in port during wartime. Closures and fittings classified YOKE are labeled with a black letter Y. When material condition YOKE is set, both XRAY and YOKE closures and fittings are closed.

**Modified ZEBRA (Z)** There may arise certain situations during which the Commanding Officer may wish to set a modified material condition ZEBRA. Setting of modified material condition ZEBRA will give a higher survivability stance than condition YOKE. At the same time, modified ZEBRA is less restrictive and will more readily allow the accomplishment of certain operational requirements. Modified ZEBRA may result as an upgrade from condition YOKE or as a downgrade from condition ZEBRA. Some of the situations that may make a modified material condition ZEBRA desirable are the following:

- a. Underway replenishment

- b. Vertical replenishment
- c. Air operations
- d. Amphibious operations
- e. Transit of known or suspected hazardous navigation areas

**SPECIAL CLASSIFICATIONS** Special classifications, which are modifications of XRAY, YOKE, and ZEBRA, plus WILLIAM and Circle WILLIAM, are placed on various fittings to meet special requirements. These special classifications are discussed in the following paragraphs.

**Circle XRAY and Circle YOKE** These classifications are designated by a black letter X or Y within a black circle. These classifications are assigned to fittings that may be opened without special permission by personnel proceeding to or from battle stations, or as required for routine inspection or for access to vital spaces. These classifications also apply to limited system isolation valves that are routinely operated. These fittings shall be reclosed immediately after each use.

**Circle ZEBRA** This classification is designated by a red letter Z within a red circle. In situations where the ship has material condition ZEBRA set for extended periods of time, the Commanding Officer may wish to authorize use of Circle ZEBRA closures and fittings to facilitate the feeding of the crew and to allow the use of selected sanitary spaces. When the Commanding Officer authorizes the use of Circle ZEBRA closures and fittings, they may be used in the same way as Circle YOKE closures and fittings when Yoke is set; that is, they may be opened to pass through but closed immediately after passing through. Operational requirements may create a need for some of these closures or fittings to be opened and left open. If so, they must be closely monitored to ensure rapid closing should the situation require.

**Dog ZEBRA** This classification is indicated by a red letter Z enclosed by a large black letter D. Dog ZEBRA closures and fittings are those which are required to be closed when material condition ZEBRA is set or during periods of darken-ship when the established material condition of readiness is YOKE. These closures and fittings are normally located in decks and bulkheads exposed to the weather. Therefore, they must be closed during darken-ship to prevent light from showing outside the ship.

**Designation WILLIAM (W)** Certain fittings, indicated by a black letter W, which serve vital piping and ventilation systems are classified WILLIAM. Even though they have specific damage control value, WILLIAM fittings are not required to be closed in consequence of the setting of any material condition of readiness. WILLIAM fittings may be open and operating regardless of the material condition of readiness set. These fittings are secured only to prevent the spread of the effects of damage, to prevent the intake of CBR contamination, to permit maintenance or to allow normal system or equipment shutdown. When contact with CBR material in the water is expected, sea suction fittings that are classified WILLIAM, except those essential for propulsion shall be closed. Particular attention shall be given to securing distilling plants in time to prevent contamination of the distilling plant and of the ship's potable and feed water supply. Closing of WILLIAM closures and fittings may be initiated by the system or space operator in attempting to limit local damage or failure. The damage control organization also may initiate closing of these fittings to prevent the spread of the effects of damage or CBR contamination.

**Circle WILLIAM** This classification is indicated by a black letter W within a black circle. Circle WILLIAM fittings are access and ventilation fittings that may be open and operating regardless of the material condition of readiness set. These fittings are required to be closed only to prevent the spread of the effects of damage or for CBR defense. Circle WILLIAM closures and fittings are closed upon recommendation of the DCA with approval from the Commanding Officer.

**Normally Open (N-O)** This classification is indicated by black letters. N-O classifications are assigned to fittings that are normally open for general system operation and do not require special permission for damage control usage.

**Normally Shut (N-S)** This classification is indicated by black letters. N-S classifications are assigned to fittings that are normally shut for general system operation and do not require special permission for damage control usage.

# CCOL/SPACE INSPECTION

DEPARTMENT \_\_\_\_\_ DATE \_\_\_\_\_ COMPARTMENT NUMBER \_\_\_\_\_

Y=YES/N=NO

1. Are all CCOLs posted at each main entrance?		
2. Does the compartment number on the CCOL match the number on the Bullseye?		
3. Are all items on the CCOL in numerical order? (I.e. 1, 2, 3, 4, 5, Vice 1, 3, 3a, 6, 7, 9)		
4. Are all classified fittings numbered with a 3 part DC number? (I.e. 1-121-1 vice 1-121-11 or 1-1211)		
5. Are DC fittings listed in the proper group, group headings in the correct order and <b>not</b> abbreviated?		
6. Are divisions assigned to each <b>X, CX, Y, CY, W,</b> and <b>DZ</b> fitting with repair lockers assigned to <b>CW, Z, CZ,</b> and <b>DZ</b> fittings?		
7. Do CCOLs have duplicate written on them if the compartment has more than one access? (Note: CCOLs stamped original are maintained in the master CCOL)		
8. Check each item listed on the CCOL against each fitting in the compartment by removing the CCOL from it's holder and starting with item number 1, go fitting by fitting ensuring the DC fitting number and classification <b>match exactly. Note: All sounding tube caps will be classified circle X-Ray.</b>		
9. Are all numbers on classified fittings clear and legible? (Not painted over, not taped over, not 50% faded)		
10. Are all classification markings of the proper color? (X, Y, W, and D are black; Z is red)		
11. Do all fittings operate? (I.e. Handwheels not missing)		
12. Are wrenches for deck drain valves, hatches, Ovbd discharges, and individual dog WTDs in place and of the correct size? (At least one within 10 feet of fittings)		

**Y=YES / N=NO**

13. Are fittings found OOC or out of adjustment properly entered in the OOC list of the DC closure log?		
14. Are the label plates correct? (Number of fitting, noun name of compt. you are entering and compt. number)		
15. Are gaskets (0 gap), knife edges & wedges free of paint?		
16. Are the fittings, which are required to be closed for the material condition, set on the ship closed?		

NOTES: \_\_\_\_\_

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MATERIAL CONDITION CHECKS

YOKE/ZEBRA \_\_\_\_\_

REPAIR LOCKER \_\_\_\_\_

DATE \_\_\_\_\_

USS/USCG \_\_\_\_\_

BULLSEYE \_\_\_\_\_

CCOL \_\_\_\_\_

COLOR \_\_\_\_\_

MAJOR \_\_\_\_\_

MINOR \_\_\_\_\_

	<b>BULLSEYE</b> -----> <b>CCOL</b> ----->						
	<b>BULLSEYE</b> -----> <b>CCOL</b> ----->						
	<b>BULLSEYE</b> -----> <b>CCOL</b> ----->						
	<b>BULLSEYE</b> -----> <b>CCOL</b> ----->						

**Material Grading Information:**

<b>1. WATERTIGHT DOORS, HATCHES AND SCUTTLES</b>	<b>MAJOR</b>	<b>MINOR</b>
A. 2 OR MORE DOGS NOT SET, BROKEN, MISSING OR INOPERATIVE (1 DOG IS A MINOR)	<b>X</b>	
B. OPEN IN VIOLATION OF MATERIAL CONDITION	<b>X</b>	
C. GASKET MISSING,	<b>X</b>	
D. KNIFE EDGE, WEDGE, OR GASKET PAINTED OR GASKET DETERIORATED		<b>X</b>
E. PASSING AIR OR LIGHT THRU WATERTIGHT BULKHEAD OR DECK	<b>X</b>	
<b>2. HOLES</b>		
A. HOLES IN WATERTIGHT DECK OR BULKHEAD	<b>X</b>	
B. HOLES IN SKIN OF SHIP	<b>X</b>	
<b>3. AIR TEST FITTINGS</b>		
A. CAP MISSING THRU WATERTIGHT DECK OR BULKHEAD	<b>X</b>	
B. LOOSE 1 TURN OR MORE (TIGHTENING DIRECTION FOR CAPS WITHOUT GASKET, LESS THAN 1 TURN IS A MINOR)	<b>X</b>	
<b>4. SOUNDING TUBE CAPS</b>		
A. LOOSE 1 OR MORE TURNS (TIGHTENING DIRECTION, LESS THAN 1 TURN IS A MINOR)	<b>X</b>	
B. CAP MISSING, NO VALVE INSTALLED	<b>X</b>	
C. INOPERATIVE, VALVE FROZEN OR CAP FROZEN	<b>X</b>	
D. SOUNDING TUBE VALVE OPEN WITHOUT CAP	<b>X</b>	
E. SOUNDING TUBE VALVE OPEN WITH CAP INSTALLED		<b>X</b>
F. MISSING HANDWHEEL OR BROKEN HANDWHEEL	<b>X</b>	
<b>5. DECK DRAIN VALVE, WITH CLOSURE DEVICES</b>		
A. 50% OR MORE SCREWS MISSING, LESS THAN 50% IS A MINOR	<b>X</b>	
B. CLOSURE DEVICE OR VALVE MISSING	<b>X</b>	
C. INOPERATIVE, FROZEN	<b>X</b>	
D. OPEN IN VIOLATION OF MATERIAL CONDITION	<b>X</b>	

**6. STUFFING TUBES / CABLEWAYS**

A. OPEN, NOT PACKED, NOT SEALED OR INEFFECTIVE SEAL THRU WATERTIGHT BULKHEAD	<b>X</b>	
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**7. SUBMERSIBLE PUMP OVERBOARD DISCHARGE**

A. OPEN OR CAP MISSING	<b>X</b>	
B. SPANNER WRENCH MISSING (ATTACHED BY CABLE OR CHAIN)		<b>X</b>
C. LOOSE 1 TURN OR MORE (LESS THAN 1 TURN IS A MINOR)	<b>X</b>	

**8. AIRPORTS AND BATTLE PORTS**

A. 50% OR MORE DOGS MISSING, OPEN OR INOPERATIVE	<b>X</b>	
B. PASSING LIGHT OR AIR		<b>X</b>

**9. FIREMAIN VALVES**

A. OPEN IN VIOLATION OF MATERIAL CONDITION	<b>X</b>	
B. INOPERATIVE, FROZEN OR HANDWHEEL MISSING	<b>X</b>	
C. WILLIAM VALVE CLOSED (INFORMATION ONLY)		

**10. VENTILATION SYSTEM**

A. VALVE OPEN OR FANS RUNNING IN VIOLATION OF MATERIAL COND.	<b>X</b>	
B. WILLIAM VALVE CLOSED OR FAN SECURED (INFORMATION ONLY)		

**11. VOICE TUBES WITH COVERS**

A. OPEN IN VIOLATION OF MATERIAL CONDITION	<b>X</b>	
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**12. SALT WATER AND BALLAST SYSTEMS (INCLUDING MAIN DRAINAGE)**

A. VALVE OPEN IN VIOLATION OF MATERIAL CONDITION	<b>X</b>	
B. VALVE INOPERATIVE	<b>X</b>	
C. HYDRAULIC OPERATORS OR LIGHTS INOPERATIVE	<b>X</b>	

**13. MISCELLANEOUS SYSTEM VALVES**

A. OPEN IN VIOLATION OF MATERIAL CONDITION	<b>X</b>	
B. VALVE FROZEN OR INOPERATIVE	<b>X</b>	
C. HANDWHEEL MISSING	<b>X</b>	

14. **PASSING TUBES, SECURITY LIGHT FITTINGS**

A. LOOSE, OPEN OR CAP MISSING	<b>X</b>	
B. PASSING LIGHT OR AIR	<b>X</b>	

15. **DECK SOCKETS**

A. CAP FROZEN, SOCKET FROZEN OR OPEN IN VIOLATION	<b>X</b>	
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**NOTES:** WHEN A VALVE IS HIDDEN (DECK PLATES, FALSE BULKHEADS, ETC.), THE MARKING SHOULD BE ON THE VALVE AND ON THE ACCESS PLATE. MHC, BUTTERWORTH CONNECTION, AND AHVC UNDER MATTING/DECK PLATE CAN BE NUMBERED AND CLASSED ON THE BULKHEAD OR CLOSE PROXIMITY.

UNDER ALL CATEGORIES-FOR FITTINGS NOT NUMBERED, NOT CLASSIFIED, MISNUMBERED, MISCLASSIFIED ARE MINOR DISCREPANCIES.

FITTINGS LOGGED INOPERATIVE IN THE CLOSURE LOG ARE NOT DISCREPANCIES.

ZEBRA ACCESSES LOCKED DURING CONDITION YOKE MUST BE LOGGED CLOSED. IF NOT LOGGED CLOSED (CLOSURE LOG) THIS WILL BE CONSIDERED A MINOR DISCREPANCY.

1 WRENCH MUST BE AVAILABLE WITHIN 10 FEET OF ALL FITTINGS, IF NOT THIS WILL BE CONSIDERED A MINOR DISCREPANCY.

## **DAMAGE CONTROL CLOSURE LOG:**

NOTE: NWP 3-20.31 STATES THAT THE DCA SHALL MAINTAIN THE CLOSURE LOG.

- A. Does the closure log instruction address the Commanding Officer designating in writing the maximum number of fittings authorized to be in violation of the prescribed material condition of readiness?
- B. Is an Inoperative Fitting Log maintained as part of the closure log with the status of OOC fittings (i.e. jammed, threads stripped)?
- C. Does the DCA frequently review the Damage Control Closure Log?
- D. Is there an entry (twice a day) in the closure log reflecting the results of the checking of the material condition of readiness?
- E. Are all modifications of the material condition of readiness logged?
- F. Are fittings logged open no greater than 24 hours?
- G. Is the log filled out in black ink only?
- H. Is the name, rate, and division of the person requesting violation properly logged?
- I. Is the type of fitting properly logged?
- J. Is the damage control number of the fitting properly logged?
- K. Is the classification of the fitting properly logged?
- L. Is the date and time the fitting was opened/closed properly logged?
- M. Is the estimated length of time the fitting is going to be opened properly logged?
- N. Is the person granting permission signature properly logged?

### **Notes:**

- 1. Never write-over or erase. In the event of a mistake, line out the mistake with **one** line and initial.
- 2. NSTM 079 VOL II states that the log entry for every closure, or fitting, that is locked shall be annotated with its status (i.e. locked shut).
- 3. OOC fittings listed need not be logged each time the ships material condition is set or checked.

4. Recommend inserting an example of a correct closure log entry and an incorrect closure log entry into your instruction.
5. Recommend the ship establish group fittings for special evolutions (i.e. refueling, sea & anchor detail, modified zebra).
6. The modified zebra group fitting should list the DC #, class and type of fitting which will be shut and the DC #, class and type of fitting which will be left open. (I.e. The following fittings will be closed: WTH 2-110-2 Z, the following fittings will be open QAES 2-110-2 CX).

## SECTION THREE

### **DCTT BRIEF PREPARATION**

It is recommended that every DCTT member participate in writing the Battle Problem scenarios, Multi hit integrated scenarios, CBR-D drills, and At-Sea Fire Party scenarios. Do not let the same member write all the drills.

Battle Problem Development Sheets are a recommend and useful tool. Used in conjunction with an overview sheet, which includes the geopolitical situation, training objective, safety's, simulations, ORM, degraded equipment, time-line, and CO's signature. This will make writing a multi-hit scenario simple.

**The following page is an example of a Battle Problem Development Sheet, which can be tailored to your ship.**

**BATTLE PROBLEM OUTLINE**

DATE: \_\_\_\_\_

DAMAGE: MISSILE / NEAR MISS / TORPEDO / MINE / FAS / OTHER: \_\_\_\_\_

USCGC/USS: \_\_\_\_\_

REPAIR: \_\_\_\_\_ / DUTY SEC: \_\_\_\_\_

<p style="text-align: center;"><b>CLASS _____ FIRE</b></p> <p>COMPT(S): _____ / _____</p> <p>_____ / _____</p> <p>SOURCE: _____</p> <p>_____</p> <p>INSTALLED SYS: _____</p> <p style="text-align: center;"><b>EFFECTIVE/INEFFECTIVE</b></p> <p style="text-align: center;"><b>FIRE BOUNDARIES</b></p> <table style="width: 100%; text-align: center;"> <tr> <td style="width: 25%;">SA</td> <td style="width: 25%;">PA</td> <td style="width: 25%;">PF</td> <td style="width: 25%;">SF</td> </tr> </table> <p style="text-align: center;">_____ DECK &amp; ABOVE</p> <p style="text-align: center;"><b>SMOKE BOUNDARIES</b></p> <table style="width: 100%; text-align: center;"> <tr> <td style="width: 25%;">_____</td> <td style="width: 25%;">_____</td> <td style="width: 25%;">_____</td> <td style="width: 25%;">_____</td> </tr> <tr> <td style="width: 25%;">_____</td> <td style="width: 25%;">_____</td> <td style="width: 25%;">_____</td> <td style="width: 25%;">_____</td> </tr> </table> <p style="text-align: center;">DEPTH OF FFW _____</p> <p style="text-align: center;"><b>ATMOSPHERIC TEST</b></p> <p>02 _____ COMB _____ TOXIC _____</p> <p>ELECTRICAL DAMAGE: ETR _____</p> <p>VITAL _____ / NON-VITAL _____</p> <p>EQUIPMENT: _____</p>	SA	PA	PF	SF	_____	_____	_____	_____	_____	_____	_____	_____	<p style="text-align: center;"><b>FLOODING/PROGRESSIVE FLOODING</b></p> <p>COMPT: _____</p> <p>DEPTH: _____ FT _____ IN RISING / HOLDING</p> <p>CLEAN / CONTAMINATED: _____</p> <p>FLOODED SOLID: _____ / _____</p> <p>_____ / _____</p> <p style="text-align: center;"><b>FLOODING BOUNDARIES</b></p> <table style="width: 100%; text-align: center;"> <tr> <td style="width: 25%;">SA</td> <td style="width: 25%;">PA</td> <td style="width: 25%;">PF</td> <td style="width: 25%;">SF</td> </tr> </table> <p style="text-align: center;">_____ DECK &amp; BELOW</p> <p>SOURCE OF FLOODING: _____</p> <hr/> <p style="text-align: center;"><b>STRUCTURAL DAMAGE</b></p> <p>_____ FT _____ IN</p> <p>COMPT _____ HOLE _____</p> <p>FRAME: _____ PORT/STBD/OVHD/DECK</p> <hr/> <p>_____ FT _____ IN X _____ IN</p> <p>COMPT _____ SPLIT SM _____ CRACK</p> <p>FRAME: _____ PORT/STBD/OVHD/DECK</p> <hr/> <p>COMPT _____ FITTING TYPE/# _____</p> <p>FRAME: _____ PORT/STBD/OVHD/DECK</p> <hr/> <p style="text-align: center;">SAG / BUCKLE</p> <p>COMPT _____</p> <p>FRAME: _____ PORT/STBD/OVHD/DECK</p> <hr/> <p style="text-align: center;">PANTING BULKHEAD</p> <p>COMPT _____</p> <p>FRAME: _____ PORT/STBD/OVHD/DECK</p> <p style="text-align: center;"><b>COMPARTMENT DEMOLISHED</b></p> <p>COMPT: _____ / _____</p>	SA	PA	PF	SF
SA	PA	PF	SF														
_____	_____	_____	_____														
_____	_____	_____	_____														
SA	PA	PF	SF														
<p style="text-align: center;"><b>RUPTURED _____ PIPING</b></p> <p>COMPT: _____</p> <p>_____ X _____ CRACK</p> <p>FRAME: _____ PORT/STBD/C/L</p> <p>_____ FT _____ IN FROM THE DECK/OVHD</p> <p>VITAL SYS EFFECTED: _____</p> <p>_____</p> <p>JUMPER _____ TO _____</p>																	



FOR TRAINING PURPOSES:

**DAMAGE CONTROL TRAINING AIDS** STANDARD SIMULATIONS AND PROPS  
TABLE 079-B-1. DAMAGE CONTROL SIMULATIONS AND PROPS

<u>SIMULATION</u>	<u>PROPS</u>	<u>NSN (if applicable)</u>
Fire A, B, D	Red streamers	9905-00-194-9698
	Red rags	7290-00-044-9281
	Red lens battle lantern	6230-00-729-8881
	Flashlight	6230-00-926-4331
	Chemlights	6260-01-178-5559
Fire C	Strobe light	6230-00-067-5209
	Crush bubble wrap to make popping noise	
Presence of Fire	Activate High Temp Alarm	
Heat Source for NFTI/Fire Finder (Note: Fire Finder can be activated by shining a flashlight into the lens)	Hot potato	
	Heat Gun	4940-01-286-7079
	Drop light (can be wrapped in foil)	6230-00-010-4506
	Box of welding rods from the rod oven	
	Microwaved bag of rice	
Fire Contained	Props at waist level	
Fire Out	Props out of sight, on the Deck, or turned off	
Smoke	Smoke Machine	1040-01-302-0470
	White rags	7290-00-044-9281
	White streamers	9905-00-684-4645
	Black rags	7290-00-044-9281
	Blue rags	7290-00-044-9281
Fire Rollover (Used to drive fire team to use fog attack)	Red streamers hung from the overhead	

<u>SIMULATION</u>	<u>PROPS</u>	<u>NSN (if applicable)</u>
Burning gases in the overhead	Sheet or plastic bag hung across the overhead or near the space entrance	
Hang Fire	Place heat source simulation in space	
Activation of Plug	Allow Plugman to open valve, then DCTT secure it	
Testing of Firefighting Agent	Blue streamer	9905-01-056-5319
	Blue rag (on deck or wrapped around the nozzle)	7920-00-044-9281
CO2	White rag or Talcum Powder	7290-00-044-9281
AFFF	White rag or Plastic bag full of packing materials (white styrofoam popcorn)	
PKP	Purple rag	7290-00-044-9281
Desmoking	Remove props Actual removal of smoke	
Firefighting Water on Deck	Blue streamer / rag/ chemlight at the specified level	
AFFF/FFW in Bilge	4 by 4 blocks painted blue for FFW and topped by white to the depth of AFFF (can be various size blocks) Grease pencil markings on hand-held bilge level indicator	
Jammed WTD/WTH	Large masking tape X on the fitting DCTT member hold fitting handle to prevent opening	
Hot Surface	Bubble wrap on fitting, deck or bulkhead	
Bulkhead/Deck	Size of hole cut from black sheet rubber and placed in position	

<u>SIMULATION</u>	<u>PROPS</u>	<u>NSN (if applicable)</u>
Gas Free Test	Grease pencil marks on 4- Gas Analyzer, Explosive Meter or O2 Indicator and Drager Tubes	
Electrical Isolation	actual isolation and Hang a SECURED signs after Watchstander places hands on correct component	
OBA Activation	Member take actual canister. DCTT member replace canister with sticker or masking tape with date written on it	
AFFF Activation	Post ACTIVATED sign on control switch after Watchstander attempts to push it. (Ensure station is in RECIRC)	
Panting Bulkhead/Sagging Overhead	DC Plate/cardboard/thin sheet metal inserted between frames	
Empty CO2 Extinguisher	Tap on extinguisher	
	Remove white rag or talcum powder	
Flooding	Blue streamers	
	Blue rags	7920-00-044-9281
	Blue chemlight	6260-01-178-5559
	Spray bottle with H2O	
	Activate flooding alarm	
	Blue chemlight or rag attached to a ruler and slide up or down to indicate flooding level	
Ruptured Piping	Masking tape with crack drawn on it and rags indicating proper hazard color	
Dewatering	Set up equipment, lower props to indicate flooding level	

<u>SIMULATION</u>	<u>PROPS</u>	<u>NSN (if applicable)</u>
Piping System Isolation	Allow member to close valve(s), DCTT open valve(s) and hang CLOSED sign	
Toxic Gas	Toxic gas simulator	1H 1365-01-367-5695
Man Down	OSCAR or actual personnel	
Injuries	Moulage set Simulation cards	6910-00-540-6378
Use of AFFF (Installed Systems)	Grease pencil marks on sight glass	
	Run magnet down sight glass	
AFFF Cutout to Main Space	Allow member to close valve, DCTT open valve and hang CLOSED sign	
Use of Sub Pumps	Allow member to rig pump but do not allow it to be energized. Place pump in drum or container filled with water, then energize. Secure when container is empty.	
Halon Effective	Hang gray streamers from overhead near view ports. Cool boundaries in surrounding spaces. Gray streamers near main space ventilation outlets and stack	
Halon Ineffective	Hang black streamers from overhead near view ports Hot boundaries (bubble wrap) Black streamers near main space ventilation outlets and stack	
Heavy Smoke (to prompt active desmoking)	White or black rag over Scene Leader's OBA facepiece	
Bilge Vapor Seal	Bucket of soapy water	

<u>SIMULATION</u>	<u>PROPS</u>	<u>NSN (if applicable)</u>
AFFF usage	Lower blue chemlight or rag on side of empty AFFF container as AFFF is consumed	
Halon/CO2 Activation/Release	Operate pressure switches for vent shutdowns and alarms	
Halon Soak Time	IAW MSFD	
Loss of Firemain	Grease pencil mark on firemain gauge False gauge face	
Use of Installed Eductor	Post OPEN signs on valves after Watchstander explains system line-up Activate discharge and firemain valves and hang OPEN sign on suction valve	
PKP Empty	Tap on PKP extinguisher Remove purple rag	
Hazard	Type of spill on deck or from piping:  Water: Blue rags  F/O, L/O: Yellow rags  Hydraulic Fluid: Orange rags	

**DAMAGE CONTROL TRAINING TEAM EVALUATION EFFECTIVENESS**

USS: \_\_\_\_\_ DATE: \_\_\_\_\_

Drill/Exercise conducted: \_\_\_\_\_

Evaluator: \_\_\_\_\_

Ref: (a) COMNAVSURFLANTINST 3502.2 Series

(b) COMNAVAIRLANTINST 3500.20 Series

**A. PRE-EXERCISE BRIEF****EFFECTIVE** ☐**INEFFECTIVE** ☐**YES / NO**

1. Was the drill scenario/drill card approved by the Commanding Officer?		
2. Were sufficient members present to represent each station to be monitored?		
3. Were assignment of duties for each member identified?		
4. Were training objectives identified?		
5. Was exercise "MODE" specified? (walk-through, training, evaluation)		
6. Was degraded equipment reported at the brief?		
7. Were safety precautions identified and reviewed? (Including procedures for actual casualties)		
8. Did training plan address Operational Risk Management (ORM)?		
9. Were constraints and simulations identified? (Keep to a minimum/consistent with safety)		
10. Were time lines/Sequence of events identified		
11. Was communications method to be used between training teams identified?		
12. Was the initiator and method of imposing exercise identified?		
13. Was Grade/Critique sheets distributed?		

**B. IMPOSITION OF EXERCISE****EFFECTIVE ☐****INEFFECTIVE ☐****YES / NO**

1.	Were team members on station prior to commencement?		
2.	Was a safety brief and/or walk-through conducted on station prior to the exercise? (If applicable)		
3.	Did team members provide minimum prompting? (Depending on exercise mode)		
4.	Does the training team train the crew during the drill?(Depending on "MODE" of training)		
5.	Does the training team use an effective means of testing the crew's knowledge? (Q&A, explain actions, etc)		
6.	Were unsafe conditions (If any) recognized, and corrective actions taken?		
7.	Was the exercise conducted as briefed?		
8.	Were communications/coordination between team members adequate?		

**C. POST EXERCISE EVALUATION AND DEBRIEF****EFFECTIVE ☐****INEFFECTIVE ☐****YES / NO**

1.	Were all aspects of the exercise evaluated?		
2.	Were Grade sheets used effectively?		
3.	Were major deficiencies (If any) observed and recorded?		
4.	Was a debrief conducted on station?		
5.	Was a Training Team debriefing conducted?		
6.	Were all team members present?		
7.	Was there an assigned recorder?		

**C. POST EXERCISE EVALUATION AND DEBRIEF (CONTINUED)**

EFFECTIVE ☐

INEFFECTIVE ☐

YES / NO

8. Were all (If any) Safety Violations identified?		
9. Was actual team coordination and risk management discussed?		
10. Were lessons learned identified?		
11. Were problem areas identified?		
12. Was the evaluation of the watch teams performance adequate?		
13. Were critique sheets used effectively?		
14. Did the training team critique themselves?		

**D. The Training Team was evaluated as effective/ineffective.**

Comments: \_\_\_\_\_

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**INSTRUCTOR SIGNATURE:**

**TLO SIGNATURE:**

**COMMANDER ATLANTIC AREA**

**ASSESSMENT/TRAINING/CERTIFICATION CRITERIA  
FOR  
ONBOARD TRAINING TEAM END OF TSTA ASSESSMENT**

**USCGC:**

**DATE:**

**OBTTS INVOLVED: DCTT ETT NSTT CSTT CTT ATT  
(circle)**

**YES NO**

**TRAINING TEAM PLANNING.**

( )	( )	1. Was there a written drill plan?
( )	( )	2. Was the drill plan complete (i.e. training objectives, training team assignments, etc.)?
( )	( )	3. Was a pre-brief/walk-through conducted as appropriate?
( )	( )	4. Are the drills realistic, as it relates to normal operations?
( )	( )	5. Do drills use realistic simulations?
( )	( )	6. Did training team minimize simulations?
( )	( )	7. Was operational risk management addressed as appropriate?
( )	( )	8. Was the drill plan approved and signed by the CO prior to the brief?
( )	( )	9. Are all props standardized throughout all training teams?

Comments (required for no checks)

YES	NO	
<b>BRIEFING</b>		
( )	( )	10. Did training team muster with sufficient lead time and representation to cover all areas?
( )	( )	11. Were areas of responsibility assigned and understood?
( )	( )	12. Did the training team conduct a safety walk through of equipment and areas before the drill/instruction and discuss corrections?
( )	( )	13. Are all training team members proficient in evaluating areas they are training?
( )	( )	14. Did the training teams discuss equipment, and changes to equipment status, and OCC equipment?
( )	( )	15. Were training time out procedures discussed?
( )	( )	16. Was the brief held in a quiet area of the cutter and away from the rest of the crew?
( )	( )	17. Was Operational Risk Management discussed as appropriate?
( )	( )	18. Were safety precautions and unusual situations discussed (i.e. heat stress, hearing conservation, etc.)?
( )	( )	19. Were the methods of disclosure, simulations and props discussed?
( )	( )	20. Was the time line discussed (i.e. start, stop time, schedule of events, imposition methods)?
( )	( )	21. Was the training level briefed (i.e. walk through, training, evaluation)?
( )	( )	22. Did the brief discuss specific training objective?
Comments (required for no checks):		

YES	NO	
<b>CONDUCT OF DRILL</b>		
( )	( )	23. Were all safety walk through discrepancies corrected prior to drill?
( )	( )	24. Was time line executed as briefed?
( )	( )	25. Were realistic casualties/situations imposed?
( )	( )	26. Were imposed casualties in accordance with the brief?
( )	( )	27. Did the training team recognize and prevent/correct unsafe conditions of personnel and equipment?
( )	( )	28. Did the training team maintain control and conduct the drill as briefed?
( )	( )	29. Did the training team conduct watchstander training as required?
( )	( )	31. Was prompting appropriate/adequate for the watchstander's knowledge level?
( )	( )	32. Did the training team use effective means to check the watchstander's knowledge (i.e. CCM, MSFD, tasking sheets, etc.)?
( )	( )	33. Did the training team members have effective comms with each other?
( )	( )	34. Were props delivered realistically (no pre-stage or pre-disclosure)?
( )	( )	35. Did watchstanders recognize all props used by training teams?
Comments (required for no checks):		

YES	NO	
<b>DEBRIEF/EVALUATION</b>		
( )	( )	36. Were timely debriefs conducted with training team members?
( )	( )	37. Did the training team have proper representation to cover all areas at debrief?
( )	( )	38. Did the training team monitor all areas of the drill?
( )	( )	39. Did the training team accurately assess/grade the drill?
( )	( )	40. Did the training team work to identify watchstanders weaknesses during the drill?
( )	( )	41. Did the training team plan or take action to correct watchstanders weaknesses?
( )	( )	42. Did the training team identify its own weaknesses?
( )	( )	43. Did the training team plan or take action to correct their own weaknesses?
( )	( )	44. Did the training team identify material/documentation discrepancies during the drill (i.e. CCOLs, manuals, bills)?
( )	( )	45. Did the training team work to correct recurring material discrepancies?
( )	( )	46. Were training objectives met?
( )	( )	47. Did the training team have sufficient props to support the drill?
( )	( )	48. Did the training team provide a timely debrief with the watchstanders?
( )	( )	49. Was ORM assessed/disclosed (accurate/not accurate)?
Comments (required for no checks):		
<b>INSTRUCTOR SIGNATURE:</b>		<b>TLO SIGNATURE:</b>

SECTION FOUR  
DAMAGE CONTROL FREQUENTLY ASKED QUESTIONS

**\* INVESTIGATORS**

1. WHAT METHOD OF INVESTIGATION IS USED TO LOCATE DAMAGE IN TANKS AND VOIDS?

ANS: SOUNDING AND USING THE LIQUID LOAD LIST.

2. WHY IS IT IMPORTANT TO HAVE AN UP TO DATE LIQUID LOAD LIST?

ANS: TO KNOW THE LEVEL OF TANKS AND VOIDS PRIOR TO DAMAGE.

3. HOW ARE AIR TEST FITTINGS USED TO INVESTIGATE FOR DAMAGE?

ANS: LOOSEN AND LISTEN FOR AIR ESCAPING OR WATER AROUND PIPE.

4. AIR ESCAPING FROM AN AIR TEST FITTING INDICATES WHAT KIND OF DAMAGE?

ANS: POSSIBLE FLOODING.

5. WHAT METHOD IS USED TO CHECK FOR HOT DOORS AND HATCHES?

ANS: REMOVE GLOVE AND CHECK WITH BACK OF HAND ½ IN FROM DOOR.

6. WHAT SHOULD BE USED ON A SOUNDING TAPE WHEN SOUNDING A FUEL TANK?

ANS: WATER INDICATING PASTE.

7. WHAT ARE THE FOUR PRINCIPLES OF INVESTIGATION?

ANS: INVESTIGATE THOROUGHLY, CAUTIOUSLY, REPORT QUICKLY AND CLEARLY. REPEAT YOUR INVESTIGATION.

8. WHAT SHOULD BE USED ON A SOUNDING TAPE WHEN SOUNDING A WATER TANK?

ANS: CHALK.

9. SHOULD YOU SOUND A FUEL TANK AND A WATER TANK WITH THE SAME SOUNDING TAPE?

ANS: NO. THE FUEL RESIDUE ON THE TAPE WOULD CONTAMINATE THE FRESH WATER.

10. HOW WOULD YOU CHECK A BULKHEAD FOR FLOODING ON THE OTHER SIDE?

ANS: TAP UP THE BULKHEAD LISTENING FOR A CHANGE IN SOUND. LOOK FOR SWEATING ON THE BULKHEAD.

**\* ACCESS AND OVERHAUL MAN**

11. WHAT IS THE ACCESS MAN'S JOB?

ANS: TO OPEN DOORS, HATCHES AND SCUTTLES AND TO CLEAR ROUTES AS NECESSARY TO GAIN ACCESS TO THE AFFECTED SPACE.

2. WHAT EQUIPMENT DOES THE ACCESS MAN CARRY, AS NECESSARY?

ANS: A CROWBAR OR PRYBAR, AND A 10LB SLEDGEHAMMER, BOLT CUTTERS, AND PECU.

3. WHEN OPENING AN INDIVIDUAL-DOG WATERTIGHT DOOR OR HATCH, WHICH SIDE IS UNDOGGED FIRST?

ANS: THE HINGE SIDE FIRST.

4. WHAT TOOLS ARE USED IN OVERHAULING A FIRE?

ANS: A FIRE AXE AND RAKE.

5. HOW DO YOU OVERHAUL A CLASS ALPHA FIRE?

ANS: BREAK APART ANY SMOLDERING AND UNBURNED MATERIALS. USE A FIRE HOSE WITH SOLID STREAM AND FOG.

6. HOW DO YOU OVERHAUL A CLASS BRAVO FIRE?

ANS: SECURE THE SOURCE, COVER THE FUEL WITH A BLANKET OF AFFF, REMOVE FUEL (IF POSSIBLE), AND COOL SURROUNDING AREA.

7. HOW DO YOU OVERHAUL A CLASS CHARLIE FIRE?

ANS: ASSIST THE ELECTRICIAN.

**\* ELECTRICIAN**

1. WHEN DOES THE ELECTRICIAN SECURE POWER AND LIGHTING?

ANS: WHEN DIRECTED BY THE ON-SCENE-LEADER PRIOR TO ENTERING THE AFFECTED SPACE.

2. WHY DOES THE ELECTRICIAN DE-ENERGIZE ALL ELECTRICAL EQUIPMENT IN A FIRE AFFECTED AREA?

ANS: TO PROTECT PERSONNEL, AND PREVENT POSSIBLE EXPLOSIONS OR FLASHBACKS.

3. WHY DOES THE ELECTRICIAN BRING A VOLTAGE TESTER TO THE SCENE?

ANS: TO ENSURE THAT CIRCUITS ARE DE-ENERGIZED BEFORE ATTEMPTING REPAIRS.

4. WHAT DO YOU LOOK FOR WHEN CHECKING FOR ELECTRICAL DAMAGE?

ANS: WIRES THAT MAY BE CUT, GROUNDED, SHORTED OR DESTROYED.

5. WHY MUST AN ELECTRICIAN'S RUBBER GLOVES BE INSPECTED FOR CRACKS OR HOLES?

ANS: TO PREVENT ELECTRICAL SHOCK.

6. HOW DO YOU REPAIR DAMAGED WIRING IN A VITAL CIRCUIT?

ANS: SPLICE NON-VITAL WIRE OF THE SAME GAUGE OR LARGER INTO VITAL CIRCUIT AFTER ENSURING THAT BOTH CIRCUITS ARE DE-ENERGIZED. ALWAYS WORKING FROM THE LOAD TO THE SOURCE.

7. WHEN DOES THE ELECTRICIAN SECURE LIGHTING?

ANS: WHEN DIRECTED TO BY THE ON SCENE LEADER.

8. HOW IS THE VOLTAGE TESTER, (WIGGINS) TESTED?

ANS: FROM A KNOWN SOURCE.

**\* OBA**

1. EXPLAIN THE PURPOSE OF THE OBA?

ANS: TO MAKE THE WEARER INDEPENDENT OF THE SURROUNDING ATMOSPHERE.

2. CAN THE OBA BE WORN IN A PARTIALLY-FLOODED COMPARTMENT?

ANS: IN EMERGENCY SITUATIONS ONLY.

3. WHAT IS THE PROPER PROCEDURE FOR SETTING THE TIMER ON THE OBA?

ANS: TURN THE TIMER KNOB TO 60 AND BACK TO 30 MINUTES.

4. WHEN MUST THE OBA WEARER RETURN TO FRESH AIR?

ANS: WHEN THE WARNING BELL SOUNDS, IF BREATHING BECOMES DIFFICULT AND DOES NOT BECOME NORMAL AFTER EXCESS PRESSURE IS RELIEVED, AND IF FACE PIECE LENS FOGS DURING INHALATION.

5. WHAT DETERMINES HOW LONG A CANISTER WILL LAST?

ANS: PHYSICAL CONDITION AND AMOUNT OF WORK DONE BY PERSON.

6. HOW OFTEN SHOULD THE OBA BE INSPECTED?

ANS: QUARTERLY, BEFORE EACH USE IF TIME PERMITS AND BEFORE STOWAGE.

7. WHEN SHOULD YOU SET THE TIMER ON THE OBA?

ANS: IMMEDIATELY UPON INFLATING THE BAG, (AND FOR EACH DRILL)

8. WHAT MUST BE AVOIDED WHEN USING OR DISPOSING OF A QUICK ACTIVATING CANISTER?

ANS: CONTACT WITH OIL, GREASE, OR GASOLINE.

9. WHERE IS THE FACE PIECE PLACED WHEN OBA IS WORN IN THE STANDBY POSITION?

ANS: OVER THE HEAD.

10. WHAT IS THE STANDBY POSITION OF THE BAIL ASSEMBLY HANDLE?

ANS: DOWN AND LOCKED.

11. HOW IS EXCESS OXYGEN RELEASED FROM THE OBA?

ANS: BY AN AUTOMATIC RELIEF VALVE.

12. WHAT IS THE MOST COMMON CAUSE OF OBA INEFFECTIVENESS?

ANS: FACIAL HAIR AND HAIRSTYLES CAUSING LEAKAGE.

**\*SCBA**

1. WHAT IS THE PRESSURE DIFFERENCE, IN POUNDS, ALLOWED BETWEEN THE BOTTLE PRESSURE GAGE AND THE REMOTE PRESSURE GAGE?

ANS: NO MORE THAN 500 LBS.

2. WHAT IS THE PURPOSE OF THE SCBA?

ANS: TO SUPPLY OXYGEN INDEPENDENT OF THE SURROUNDING ATMOSPHERE.

3. HOW ARE SIZES RECOGNIZED FOR THE FACE PIECES?

ANS: SCOTT USES COLORED DOTS AND MSA USES COLORED LENS OUTLINES.

4. WHAT ALERTS YOU TO LOW PRESSURE IN YOUR BOTTLE?

ANS: SCOTT HAS A VIBRAL ALARM THAT SOUNDS UPON BREATH INTAKE AND MSA HAS A BELL LOCATED ON THE BOTTLE.

5. WHY SHOULD YOU CHECK YOUR REMOTE PRESSURE GAGE OFTEN?

ANS: A DRASTIC PRESSURE DROP COULD BE A LEAK WITH THE BOTTLE OR AIRPACK.

**\* PKP**

1. HOW IS PKP USED TO EXTINGUISH FIRES IN CONFINED SPACES?

ANS: SHORT BURSTS AS NECESSARY.



2. WHERE SHOULD PKP BE DIRECTED?

ANS: AT THE BASE OF THE FLAMES IN A RAPID SWEEPING MOTION.

3. WHAT IS THE EFFECTIVE RANGE OF AN 18-POUND PKP EXTINGUISHER?

ANS: APPROXIMATELY 18 TO 20 FEET.

4. FOR WHAT CLASS OF FIRES IS PKP MOST EFFECTIVE?

ANS: CLASS BRAVO.

5. HOW WOULD YOU PROTECT YOURSELF FROM THE INTENSE HEAT OF FIRE WITH PKP?

ANS: SHORT BURSTS OF PKP IN THE AIR WILL SERVE AS A HEAT SHIELD.

**\* 15LB CO2 FIRE EXTINGUISHER**

1. WHAT IS THE MAXIMUM EFFECTIVE RANGE OF A 15 LB CO2 EXTINGUISHER?

ANS: 4 TO 6 FT FROM THE TIP OF THE HORN.

2. WHY IS CO2 RECOMMENDED FOR CLASS CHARLIE FIRES?

ANS: IT'S NON-CONDUCTIVE, NON-CORROSIVE, LEAVES NO RESIDUE, AND DOES NOT DAMAGE EQUIPMENT.

3. HOW DO YOU DIRECT THE CO2 WHEN FIGHTING A CLASS CHARLIE FIRE?

ANS: AT THE BASE OF THE FLAME WITH A SWEEPING MOTION.

4. HOW DOES CO2 EXTINGUISH A FIRE?

ANS: REMOVES THE OXYGEN TO THE EXTENT THAT COMBUSTION CAN NOT BE SUSTAINED.

5. HOW CAN YOU TELL WHEN A CO2 BOTTLE IS EMPTY?

ANS: WHEN THE EXTINGUISHER MAKES A HOLLOW SOUND.

6. HOW LONG WILL A 15 LB CO2 EXTINGUISHER LAST UNDER CONTINUOUS OPERATION?

ANS: APPROXIMATELY 40 TO 45 SECONDS.

**\* AFFF**

1. WHAT IS THE MIXING RATIO FOR AFFF AND WATER?

ANS: 94% WATER, 6% AFFF CONCENTRATE.

2. CAN AFFF BE USED ON CLASS ALPHA FIRES?

ANS: YES, BECAUSE OF THE COOLING EFFECT OF THE WATER.

3. WHAT IS THE SHELF LIFE OF AFFF?

ANS: INDEFINITE.

4. WHAT CLASS OF FIRE IS AFFF NORMALLY USED FOR?

ANS: CLASS BRAVO.

5. CAN YOU USE AFFF IN CONJUNCTION WITH PKP?

ANS: YES.

6. WILL AFFF FLOAT ON TOP OF FUEL?

ANS: YES.

7. AFFF NOZZLES (BELOW DECKS) SHOULD BE PRESET AT HOW MANY GALLONS PER MINUTE?

ANS: 95 GPM.

**\* INLINE EDUCTOR**

1. WHICH TYPE OF NOZZLE SHOULD BE USED WITH THE INLINE EDUCTOR?

ANS: A 95 GPM VARI-NOZZLE.

2. WHAT SHOULD THE FIREMAIN PRESSURE BE AT THE INLET SIDE OF THE INLINE EDUCTOR?

ANS: 100 PSI.

3. HOW MANY LENGTHS OF HOSE MAY BE ADDED TO THE DISCHARGE SIDE OF THE INLINE EDUCTOR AND STILL MAINTAIN AN EFFECTIVE AFFF\WATER MIXTURE?

ANS: 3 LENGTHS OF 50 FT HOSE FOR SAME DECK OR UP ONE DECK, 6 LENGTHS TO GO DOWN ONE DECK.

4. HOW LONG WILL A 5 GALLON CAN OF AFFF LAST UNDER CONTINUOUS USE

WITH THE INLINE EDUCTOR?

ANS: APPROXIMATELY ONE MINUTE.

**\* HALON 1301**

1. WHAT ACTIVATES HALON RELEASE?

ANS: CO2.

2. HALON CYLINDERS ARE PRESSURIZED WITH WHAT COMPRESSED GAS?

ANS: NITROGEN.

3. ONCE THE HALON SYSTEM IS ACTIVATED, HOW IS THE VENTILATION SECURED?

ANS: AUTOMATICALLY THROUGH INSTALLED PRESSURE SWITCH.

4. THE HALON SYSTEM TAKES APPROXIMATELY HOW LONG TO COMPLETELY DISCHARGE?

ANS: 10 SECONDS.

5. WHAT IS THE PRIMARY FUNCTION OF THE HALON SYSTEM?

ANS: TO EXTINGUISH MAIN SPACE FIRES WHICH ARE BEYOND THE CAPABILITIES OF OTHER EXTINGUISHING SYSTEMS.

6. WHAT WARNINGS ARE GIVEN WHEN THE HALON SYSTEM HAS BEEN ACTIVATED?

ANS: VISUAL AND AUDIBLE ALARMS.

7. WHAT IS THE REQUIRED "SOAK" TIME BEFORE ENTERING A SPACE AFTER HALON DISCHARGE?

ANS: MINIMUM 15 MINUTES.

8. HOW LONG IS THE TIME DELAY FOR THE HALON 1301 FLOODING SYSTEM?

ANS: 60 SEC FOR A MECHINERY SPACE, 30 SECONDS FOR A NON MECHINERY SPACE

**\* NFTI**

1. WHICH MODE SHOULD THE NFTI BE USED IN?

ANS: CHOP.

2. A BATTERY PACK WITH FRESH BATTERIES HAS A LIFE OF APPROXIMATELY HOW LONG?

ANS: 60 TO 90 MINUTES.

3. HOW MANY L.E.D. LIGHTS WILL BE ILLUMINATED IN THE LOWER LEFT HAND CORNER OF THE VIEWING SCREEN WITH FRESH BATTERIES?

ANS: 5 L.E.D. LIGHTS.

4. WHY IS IT IMPORTANT FOR THE NFTI OPERATOR TO STAY LOW?

ANS: TO AVOID HOT GASES HIGH IN THE SPACE AND TO MAINTAIN A CLEAR IMAGE WITH THE NFTI.

5. CAN THE NFTI BE USED TO LOCATE FIRES BY VIEWING THROUGH GLASS WINDOWS?

ANS: NO, GLASS IS OPAQUE TO INFRARED RADIATION.

**\* PORTABLE EMERGENCY CUTTING UNIT (PECU)**

1. WHAT IS THE BURN RATE OF THE FUEL RODS USED WITH THE PECU?

ANS: APPROXIMATELY 30 INCHES PER MINUTE.

2. WHAT SHOULD NOT BE CUT WITH THE PECU?

ANS: PRESSURIZED PIPING THAT CONTAINS FLAMMABLE FLUIDS OR ENERGIZED ELECTRICAL CABLES.

3. THE PECU IS USED TO CUT THROUGH WHAT TYPES OF MATERIAL?

ANS: STEEL, ALUMINUM, LAMINATES, PIPING AND CABLES.

4. WHAT PROVIDES THE POWER TO INITIALLY IGNITE THE FUEL ROD?

ANS: A 12-VOLT BATTERY INTERNAL TO THE PECU.

5. WHOSE PERMISSION IS REQUIRED PRIOR TO CUTTING HOLES IN WATERTIGHT BULKHEADS OR DECKS, FIRE ZONE BULKHEADS OR DECKS, STRENGTH DECK, OR HULL PLATING?

ANS: THE COMMANDING OFFICER.

6. HOW IS THE FUEL ROD EXTINGUISHED?

ANS: RELEASE THE OXYGEN LEVER AND TURN OFF OXYGEN BOTTLE.

7. WHY IS THE PECU USED TO CUT HOLES IN THE BULKHEADS, DECKS, AND OVERHEAD?

ANS: TO FIGHT FIRES, VENT SMOKE AND HEAT, AND DRAIN FIRE FIGHTING WATER.

#### \* DEWATERING EQUIPMENT

##### EDUCTORS:

1. WHAT ARE THE TWO TYPES OF PORTABLE EDUCTORS?

ANS: S-TYPE AND PERI-JET.

2. WHAT IS THE PRIMARY PURPOSE OF EDUCTORS?

ANS: TO REMOVE WATER.

3. WHAT ARE SOME OF THE ADVANTAGES OF THE PERI-JET EDUCTOR?

ANS: 1) IT WILL PASS SMALL OBJECTS.

2) WILL REMOVE CONTAMINATED WATER.

3) SAFE BECAUSE OVERHEATING AND SPARKS ARE ELIMINATED.

##### P-250:

4. HOW IS THE P-250 MOD 1 OR 2 COOLED?

ANS: IT IS WATER-COOLED.

5. WHAT ACTION SHOULD BE TAKEN IF THE P-250 MOD 1 OR 2 PUMP FAILS TO CREATE WATER PRESSURE AFTER 45 SECONDS?

ANS: STOP PUMP, TIGHTEN ALL HOSE CONNECTIONS AND PRIME AGAIN.

6. WHAT SIZE REDUCER IS USED IF AN EDUCTOR IS USED ON THE SUCTION SIDE OF A P-250 MOD 1 OR 2 PUMP?

ANS: 4 INCH TO 3 INCH.

7. WHAT ARE THE PRIMARY PURPOSES OF THE P-250 MOD 1 OR 2 PUMP?

ANS: FIREFIGHTING AND DEWATERING.

8. WHAT IS THE SUCTION LIFT OF THE P-250 MOD 1 OR 2 WITHOUT UTILIZING AN EDUCTOR?

ANS: 20 FT.

9. HOW IS THE P-250 MOD 1 OR 2 PRIMED?

ANS: BY THE MANUAL PRIMING PUMP OR BY POURING WATER INTO THE RAPID PRIMING PORT.

10. HOW IS THE P-250 MOD 1 OR 2 LUBRICATED?

ANS: FROM A SEPARATE OIL RESERVOIR.

11. FAILURE TO OPEN FUEL TANK VENT VALVE ON THE P-250 MOD 1 OR 2 DURING OPERATION WILL CAUSE WHAT TO HAPPEN?

ANS: FUEL TANK TO COLLAPSE AND POSSIBLE ENGINE DAMAGE.

**P-100:**

12. WHAT IS THE MAXIMUM LIFT THAT A P-100 PUMPS CAN TAKE A SUCTION FROM?

ANS: 20 FT.

13. HOW IS THE P-100 COOLED WHILE IN USE?

ANS: AIR.

14. WHAT IS THE PRIMARY USE OF THE P-100?

ANS: FIRE FIGHTING, SECONDARY DEWATERING.

15. WHAT TYPE OF FUEL DOES THE P-100 UTILIZE?

ANS: JP-5 OR DFM.

16. DOES THE P-100 REQUIRE THE USE OF A FOOT VALVE?

ANS: YES.

**ELECTRIC SUBMERSIBLE PUMP:**

17. SUBMERSIBLE PUMPS ARE NOT DESIGNED FOR PUMPING WHAT TYPES OF LIQUID?

ANS: GASOLINE, HEAVY OILS, OR HOT WATER.

18. WHY IS A STRAINER USED WITH A SUBMERSIBLE PUMP?

ANS: TO PREVENT DEBRIS FROM ENTERING THE PUMP.

19. HOW MANY GALLONS OF LIQUID WILL THE SUBMERSIBLE PUMP DELIVER?

ANS: 200 GPM AT A 50 FT DISCHARGE HEAD; 140 GPM AT A 70 FT DISCHARGE HEAD.

20. WHAT SIZE DISCHARGE HOSE IS USED WITH THE SUBMERSIBLE PUMP?

ANS: A TWO AND ONE HALF INCH.

21. WHEN MUST THE SUBMERSIBLE PUMP BE PRIMED?

ANS: WHEN A SUCTION HOSE WITH A FOOT VALVE IS ATTACHED TO THE PUMP.

22. CAN THE S-TYPE EDUCTOR BE USED WITH THE P-250 MOD 1OR 2?

ANS: YES.

**\* DESMOKING COMPARTMENTS**

1. WHAT TYPE OF BLOWERS ARE USED TO DESMOKE A COMPARTMENT CONTAINING EXPLOSIVE GASES?

ANS: 1) PNEUMATIC OR AIR DRIVEN.  
2) RAMFAN.

2. HOW MANY CUBIC FEET OF AIR CAN BE REMOVED (PER MINUTE) BY A PNEUMATIC BLOWER?

ANS: 750 CUBIC FEET PER MINUTE WITH 45 FT OF 8-INCH HOSE ATTACHED.

3. HOW ARE BLOWERS USED TO AID THE ATTACK TEAM IN FIRE FIGHTING?

ANS: THEY MAY BE USED TO VENTILATE SMOKE, TOXIC GASES, STEAM, AND HEAT AWAY FROM THE ATTACK TEAMS OUTSIDE OF THE FIRE SPACE.

4. HOW ARE PORTABLE BLOWERS RIGGED WHEN DESMOKING A SPACE?

ANS: THEY ARE SET ON A WEATHER DECK RIGGED TO TAKE AIR OUT OF THE AFFECTED SPACE.

5. WHAT SAFETY PRECAUTIONS MUST BE FOLLOWED PRIOR TO ENERGIZING THE RAM FAN?

ANS: GROUND CLAMP MUST BE ATTACHED TO HULL STRUCTURE TO PREVENT THE BUILD-UP OF STATIC ELECTRICITY.

6. WHOSE PERMISSION MUST BE OBTAINED PRIOR TO DESMOKING USING THE INSTALLED VENTILATION SYSTEM?

ANS: CHIEF ENGINEERING OFFICER.

7. WHICH SYSTEM CAN BE CONVENIENTLY USED TO CLEAR A SPACE DIRECTLY OPEN TO THE WEATHER?

ANS: EXHAUST SYSTEM.

8. HOW MANY CUBIC FEET OF AIR PER MINUTE WILL THE RAMFAN PRODUCE AT 125 PSI?

ANS: 1750 CFM.

9. WHAT SIZE HOSE IS USED WITH THE RAMFAN?

ANS: 8 INCH.

10. WHAT IS THE ACTUATING SOURCE OF THE RAMFAN?

ANS: A 1½-INCH FIREHOSE AT 50 TO 200 PSI.

11. HOW MANY COMPLETE SPACE VOLUME OF AIR CHANGES ARE REQUIRED IN A COMPARTMENT?

ANS: 4 (95% OF THE SMOKE LADEN AIR REMOVED).

12. HOW MANY CUBIC FEET PER MINUTE OF AIR WILL THE SUPER VAC REMOVE?

ANS: 3200 CFM.

**\* ATMOSPHERIC TESTS**

1. WHAT IS THE ORDER OF ATMOSPHERIC TESTS TO BE CONDUCTED AFTER A FIRE?

ANS: 1) OXYGEN

2) EXPLOSIVE

3) TOXIC GASES

2. WHAT IS THE PERCENTAGE OF OXYGEN REQUIRED TO CONSIDER A SPACE SAFE?

ANS: 19.5 TO 22%

3. EXPLOSIVE GAS TESTS SHOULD BE BELOW WHAT PERCENTAGE OF L.E.L. TO BE CONSIDERED SAFE?

ANS: BELOW 10% L.E.L.

4. WHAT IS DONE IF A SPACE TESTS ABOVE 10% OF THE L.E.L. FOR EXPLOSIVE GASES?

ANS: CONTINUE TO DESMOKE AND RETEST.

5. WHO MAY CONDUCT POST FIRE ATMOSPHERIC TESTS?

ANS: GAS FREE ENGINEERS, GAS FREE ENGINEERING PETTY OFFICERS (E-5 OR ABOVE).

**\* FIRE AND FLOODING BOUNDARIES**

1. WHAT EQUIPMENT IS PRIMARILY USED IN SETTING A FIRE BOUNDARY?

ANS: 1½-IN HOSE AND NOZZLE OR SOME OTHER CONTINUOUS MEANS OF COOLING, (A GARDEN HOSE).

2. WHAT IS THE MINIMUM DISTANCE THAT COMBUSTIBLES MUST BE REMOVED FROM A PRIMARY FIRE BOUNDARY?

ANS: 12 INCHES.

3. WHAT IS THE PROPER PROCEDURE FOR COMBATING A CABLEWAY FIRE?

ANS: USE SHORT BURSTS OF HIGH VELOCITY FOG AT A MINIMUM DISTANCE OF 4 FEET FROM CABLES.

4. WHAT ARE PRIMARY FIRE BOUNDARIES?

ANS: FWD, AFT, PORT, STBD, TOP AND BOTTOM OF THE AFFECTED SPACE.

5. WHAT IS A PRIMARY FLOODING BOUNDARY?

ANS: FIRST WATERTIGHT DECK, OVERHEAD, FWD AND AFT BULKHEADS.

**\* PLUGGING**

1. THE RULE OF THUMB FOR PLUGGING IS TO USE A PLUG HOW MANY INCHES BIGGER THAN THE HOLE?

ANS: TWO INCHES BIGGER THAN THE HOLE, (I.E. A 10-IN PLUG FOR A 8-IN HOLE).

2. ALL PLUGS 10 IN OR LARGER SHOULD BE?

ANS: SHORED IN OR USE A BOX PATCH.

3. WHAT MUST BE DONE TO PREVENT CRACKS IN BULKHEADS FROM SPREADING?

ANS: DRILL ¼ IN HOLES AT THE END OF THE CRACK AND PLUG THE HOLE.

**\* PIPE PATCHING**

1. WHAT ARE THE FOUR COMMON PATCHES USED IN THE NAVY?

ANS: 1) SOFT PATCH  
2) JUBILEE PATCH  
3) BANDING PATCH  
4) EWARP.

2. WHAT IS THE MAXIMUM PRESSURE ALLOWABLE ON A SOFT PATCH?

ANS: 150 PSI.



3. SOFT PATCHES ARE NOT RECOMMENDED FOR WHAT TYPE OF PIPING SYSTEMS?

ANS: HIGH PRESSURE STEAM AND FLAMMABLE LIQUIDS.

4. WHEN APPLYING A SOFT PATCH, WHY IS THE EXCESS WEDGE LENGTH THAT WOULD PROTRUDE INTO THE PIPE CUT OFF?

ANS: TO PREVENT RESTRICTING THE FLOW OF LIQUIDS.

5. WITH A SOFT PATCH, HOW FAR SHOULD THE RUBBER EXTEND BEYOND THE SPLIT?

ANS: ABOUT TWO INCHES.

6. HOW MANY LAYERS OF MARLIN ARE APPLIED TO A SOFT PATCH?

ANS: TWO LAYERS.

7. HOW FAR BEYOND THE RUBBER IS THE MARLIN WRAPPED?

ANS: APPROXIMATELY  $\frac{1}{2}$  IN.

8. WHAT IS THE MAXIMUM ALLOWABLE PRESSURE ON A EWARP?

ANS: 150-PSI AT 300-DEGREE F.

**\* SHORING**

1. WHAT IS THE DEFINITION OF SHORING?

ANS: THE PROCESS OF PLACING SUPPORTS AGAINST THE SIDE OF, UNDERNEATH, OR ABOVE A STRUCTURE TO PREVENT METAL FATIGUE, SAGGING AND BULGING.

2. WHAT ARE THE 4 MAJOR COMPONENTS USED IN DAMAGE CONTROL SHORING?

ANS: SHORE, WEDGE, SHOLE AND STRONGBACK.

3. WHAT IS A SHOLE?

ANS: A FLAT PLATE PLACED UNDER THE END OF A SHORE TO DISTRIBUTE WEIGHT OR PRESSURE.

4. WHAT IS A STRONGBACK?

ANS: A BAR OR BEAM OF WOOD OR METAL OFTEN SHORTER THAN A SHORE USED TO DISTRIBUTE PRESSURE OR TO SERVE AS AN ANCHOR FOR A PATCH.

5. WHAT ARE THE BEST WOODS TO USE FOR SHORING?

ANS: DOUGLAS FIR AND YELLOW PINE.

6. WHAT IS THE RECOMMENDED LENGTH AND WIDTH OF SHORING WEDGES?

ANS: 6 TIMES THE MINIMUM BUTT THICKNESS AND APPROXIMATELY AS WIDE AS THE SHORING.

7. WHAT IS THE RECOMMENDED SAFE LENGTH OF A WOODEN SHORE?

ANS: 30 TIMES ITS MINIMUM THICKNESS.

8. WHAT IS THE DEFINITION OF A RUN?

ANS: THE DISTANCE FROM THE BULKHEAD ALONG THE DECK OR OVERHEAD TO AN ANCHOR POINT, LESS THE THICKNESS OF THE STONGBACKS AND WEDGES.

9. WHAT IS THE DEFINITION OF RISE?

ANS: THE DISTANCE FROM THE CENTER OF THE BULKHEAD OR DOOR BEING SHORED TO THE DECK OR OVERHEAD.

10. WHAT IS THE PURPOSE OF THE SHORING BATTEN?

ANS: PROVIDES A QUICK AND EASY WAY TO MEASURE LENGTHS AND ANGLES OF SHORES.

11. WHAT IS THE PURPOSE OF USING SAND DURING SHORING OPERATIONS?

ANS: TO PROVIDE A BETTER GRIP FOR SHORES WHEN THE DECK SURFACE IS OILY\SLIPPERY.

12. IN GENERAL, SHORES SHOULD BE SHORTENED HOW MUCH TO ALLOW FOR WEDGES?

ANS: ONE HALF INCH.

13. WHAT ARE THE THREE TYPES OF SHORING?

ANS: I (DIRECT PRESSURE), K (TRIANGULATION\PERPENDICULAR), AND H (NO DECK ANCHORAGE).

14. WHAT ARE THE TWO SIZES OF METAL SHORES?

ANS: 3 FT TO 5 FT, AND 6 FT TO 11 FT.

15. WHAT IS THE VERTICAL LOAD STRENGTH OF A 3-FT TO 5 FT METAL SHORE?

ANS: 3 FT- 20,000 LBS, 5 FT-12, and 000 LBS.

16. WHAT IS THE VERTICAL LOAD STRENGTH OF A 6-FT TO 11 FT METAL SHORE?

ANS: 6 FT- 20,000 LBS, 11 FT- 6,000 LBS.

17. WHAT ARE THE THREE PARTS OF A FRAMING SQUARE?

ANS: TONGUE, BODY, AND HEEL.

**\* EMERGENCY ESCAPE BREATHING DEVICE (EEBD)**

1. HOW LONG WILL AN EEBD PROVIDE OXYGEN?

ANS: 15 MINUTES.

2. CAN THE EEBD BE USED TO FIGHT FIRES IN AN EMERGENCY?

ANS: NO, IT IS USED ONLY FOR ESCAPE OR WAITING RESCUE IN A TOXIC ENVIRONMENT.

3. AFTER THE EEBD HOOD IS REMOVED, DO NOT SMOKE OR BE NEAR OPEN FLAMES FOR HOW LONG?

ANS: SEVERAL MINUTES DUE TO OXYGEN TRAPPED IN HAIR.

**\* OCENCO SCSR M-20.2 (EEBD)**

1. HOW LONG WILL THE EEBD M-20.2 LAST?

ANS: 10 MINUTES.

2. HOW LONG CAN THE EEBD M-20.2 BE WORN ON YOUR BELT?

ANS: 5 CONTINUOUS YEARS, THEN IT IS USED AS A RACK EEBD.

3. WHAT ARE SOME FACTORS THAT AFFECT TIME DURATION OF BREATHING AIR?

ANS: AMOUNT OF WORK, PHYSICAL FITNESS, BREATHING RATE, AND FAMILIARITY OF ESCAPE ROUTES.

4. WHAT INDICATES THE EEBD M-20.2 IS BAD?

ANS: THE NEEDLE IS OUT OF THE GREEN.

5. WHAT IS THE RECOMMENDED SHELF LIFE OF THE EEBD M-20.2?

ANS: 15 YEARS.

**\* VARI-NOZZLE**

1. WHAT ARE THE FLOW RATES FOR THE 1½ IN VARI-NOZZLE?

ANS: 95 AND 125 GPM.

2. DOES THE AMOUNT OF WATER DISCHARGED FROM THE VARI-NOZZLE CHANGE FROM STRAIGHT STREAM TO WIDE ANGLE FOG?

ANS: NO, IT REMAINS THE SAME REGARDLESS OF WATER PATTERN.

3. HOW SHOULD THE VARI-NOZZLE BE STOWED?

ANS: BAIL HANDLE IN CLOSED POSITION AND NOZZLE SET TO NARROW 30 DEGREES ANGLE.

4. WHAT IS THE WIDEST FOG ANGLE ACHIEVED BY THE VARI-NOZZLE?

ANS: 90 DEGREES.

5. HOW MANY BAIL POSITIONS DOES THE VARI-NOZZLE HAVE?

ANS: TWO. OPEN AND CLOSED.

**\* PORTABLE HYDRAULIC ACCESS AND RESCUE SYSTEM (PHARS)**

1. WHAT IS THE PURPOSE OF THE PHARS?

ANS: TO PROVIDE ACCESS THROUGH OR INTO A SPACE WHERE RESCUE OR OVERHAUL IN CUTTING, SLITTING, PIERCING, LIFTING AND PULLING IS NEEDED.

2. WHAT IS THE POWER SOURCE FOR THE PHARS?

ANS: EITHER AN ELECTRIC MOTOR OR AN ENGINE CONNECTED TO A HYDRAULIC PUMP.

3. WHAT PRECAUTIONS MUST BE OBSERVED WHEN CONNECTING OR DISCONNECTING THE HYDRAULIC LINES?

ANS: DO NOT COME IN CONTACT WITH THE HYDRAULIC FLUID, WEAR PROTECTIVE GLOVES AND GOGGLES.

4. WHAT ARE THE LIMITATIONS OF THE RESCUE SPREADER (JAWS OF LIFE)?

ANS: CAPABLE OF LIFTING 9 TONS, SPREADING TO 32 IN. AND MAKING SLITS IN 1/8 IN. STEEL.

**\* FIRE FINDER**

1. WHAT IS THE PRIMARY PURPOSE OF THE FIRE FINDER?

ANS: TO LOCATE FIRES OR HOT SPOTS.

2. CAN THE FIRE FINDER BE USED FOR OVERHAUL?

ANS: YES.

3. WHAT IS THE MAXIMUM RANGE THE FIRE FINDER IS SENSITIVE TO?

ANS: 15 FT.

4. CAN THE FIRE FINDER BE USED IF IT FAILS THE SELF-TEST?

ANS: NO.

5. WHAT IS THE POWER SOURCE FOR THE FIRE FINDER?

ANS: 2 STANDARD 9-VOLT BATTERIES.

**CBR QUESTIONS AND ANSWERS**

**\* NUCLEAR WARFARE DEFENSE**

1. WHAT TYPE OF DAMAGE MAY BE EXPECTED FROM A NUCLEAR UNDERWATER DETONATION?

ANS: HOLES AND CRACKS IN THE HULL BELOW THE WATER, RUPTURED PIPING SYSTEMS, ELECTRICAL FIRES DUE TO PARTED CABLES, DAMAGED MACHINERY AND LARGE AMOUNTS OF RESIDUAL RADIATION ON THE WEATHER SURFACES.

2. WHAT IS THE MEANING OF SAFE STAY TIME WHILE IN A NUCLEAR ENVIRONMENT?

ANS: THE MAXIMUM TIME A PERSON CAN BE IN A CONTAMINATED AREA WITHOUT EXCEEDING THE MAXIMUM PERMISSIBLE EXPOSURE.

3. WHY DOES THE SHIP SET CIRCLE WILLIAM FITTING PRIOR TO OR IMMEDIATELY AFTER A NUCLEAR DETONATION?

ANS: TO PREVENT OR LIMIT THE AMOUNT OF FALLOUT OR RADIOLOGICAL CONTAMINATION FROM ENTERING THE SHIP.

4. WHO ESTABLISHES THE MAXIMUM PERMISSIBLE EXPOSURE (MPE)?

ANS: THE SHIP'S COMMANDING OFFICER.

5. WHY IS IT IMPORTANT THAT ONE DOES NOT EAT, DRINK OR SMOKE WHILE CONTAMINATION IS SUSPECTED?

ANS: TO PREVENT CONTAMINATION FROM ENTERING YOUR BODY.

6. DEFINE MAXIMUM PERMISSIBLE EXPOSURE.

ANS: THE MAXIMUM EXPOSURE TO RADIATION THAT CAN BE ALLOWED DURING A SPECIFIED PERIOD OF TIME.

7. WHAT AREAS OF THE SHIP ARE BEST FOR DEEP SHELTER STATIONS?

ANS: LOW IN THE SHIP, NEAR THE CENTERLINE BELOW THE WATERLINE.

8. WHAT METHODS ARE USED TO DECONTAMINATE ONBOARD AREAS AND EQUIPMENT IN A NUCLEAR WARFARE ENVIRONMENT?

ANS: FIREHOSING AND MANUAL SCRUBBING: THE AREA IS WASHED BY HOSING, SCRUBBED WITH BRUSHES AND DETERGENT, AND AGAIN WASHED BY HOSING.

9. DESCRIBE THE MARKER USED TO INDICATE A NUCLEAR CONTAMINATED AREA?

ANS: A WHITE TRIANGLE MADE OF WOOD, METAL OR PLASTIC WITH THE WORD ATOM PRINTED IN BLACK. THE DOSE RATE, DATE OF BURST, DATE AND TIME OF READING WILL BE WRITTEN WHEN POSTED.

10. WHAT IS THE DIFFERENCE BETWEEN RADIATION AND CONTAMINATION?

ANS: RADIATION CONSISTS OF INVISIBLE RAYS AND IONIZING PARTICLES GIVEN OFF FROM A RADIOACTIVE SUBSTANCE. CONTAMINATION IS A CONDITION IN WHICH RADIOACTIVE MATERIAL IS IN LOCATIONS WHERE IT MAY HARM PERSONNEL.

11. WHY IS A NUCLEAR UNDERWATER DETONATION POTENTIALLY MORE DANGEROUS TO NAVAL VESSELS THAN AN AIRBURST?

ANS: UNDERWATER SHOCK WILL PRODUCE A LARGE AMOUNT OF UNDERWATER DAMAGE AND POSSIBLY HEAVY FALLOUT FROM THE BASE SURGE.

12. WHAT ARE SOME OF THE SYMPTOMS OF RADIATION SICKNESS?

ANS: NAUSEA OR VOMITING, SORE THROAT, FEVER, DIARRHEA, SKIN HEMORRHAGES, LOSS OF WEIGHT AND HAIR LOSS.

13. WHAT DOES THE INITIAL RADIATION SURVEY DETERMINE AFTER A NUCLEAR DETONATION?

ANS: DETERMINES THE LEVEL OF INTENSITY AND LOCATION OF CONTAMINATION.

14. WHAT ARE THE PROCEDURES FOR SELF-PROTECTION IN THE EVENT OF A NUCLEAR ATTACK?

ANS: SEEK SHELTER, COVER FACE AND EYES. BRACE FOR SHOCK (HOLD ON TO A SOLID SHIP STRUCTURE, FLEX ARMS AND KNEES, AND REST ON THE BALLS OF THE FEET, DON PROTECTIVE MASK).

**\* CHEMICAL/BIOLOGICAL DEFENSE.**

15. HOW MANY PHYSICAL STATES ARE CHEMICALS FOUND TO EXIST IN?

ANS: THREE. SOLID, LIQUID, AND GAS.

16. HOW DO CHEMICAL AGENTS ENTER THE BODY?

ANS: 1.RESPIRATORY TRACT.  
2.CONTACT WITH THE SKIN.  
3.WOUNDS OR CUTS.  
4.THROUGH THE EYES.

17. HOW FAST CAN DEATH OCCUR FROM BLOOD AGENT EXPOSURE?

ANS: AS FAST AS FIFTEEN SECONDS IN HIGH CONCENTRATIONS.

18. WHAT TWO SHIPBOARD PROTECTIVE MEASURES ARE TAKEN BEFORE A CHEMICAL ATTACK?

ANS: SECURE CLOSURE DEVICES (CIRCLE WILLIAM) AND ACTIVATE THE WDCM SYSTEM.

19. WHAT METHODS ARE USED TO DECONTAMINATE PERSONNEL AND EQUIPMENT AFTER A CHEMICAL ATTACK?

ANS: PERSONNEL USE THE PERSONNEL DECONTAMINATION KIT M-291, SOAP AND WATER AT THE DECONTAMINATION STATION, EQUIPMENT IS DECONTAMINATED WITH THE M-291 AND VARYING SOLUTIONS OF CHEMICALS MIXED WITH SOAP AND WATER.

20. DESCRIBE THE MARKER USED TO INDICATE A CHEMICAL CONTAMINATED AREA?

ANS: A YELLOW TRIANGLE WITH THE LETTERS "GAS" IN RED AND NAME OF THE AGENT, DATE AND TIME OF CONTAMINATION WRITTEN IN.

21. WHAT AGENTS, IN A VAPOR FORM, WILL THE M-256A1 CHEMICAL AGENT DETECTOR KIT IDENTIFY?

ANS: BLISTER, NERVE, LEWISITE, BLOOD.

22. IF DURING A CHEMICAL ATTACK YOUR EYES BECOME CONTAMINATED, WHAT SHOULD YOU USE AS A DECONTAMINATING SOLUTION?

ANS: NON-CONTAMINATED WATER ONLY.

23. WHAT ARE THE TWO PHASES OF DEFENSE FOR BW/CW ATTACK?

ANS: 1.PREPATORY MEASURES TAKEN IN ANTICIPATION OF AN ATTACK.

2.ACTIVE MEASURES TAKEN IMMEDIATELY FOLLOWING ATTACK.

24. WHAT ARE THE FOUR CASUALTY AGENTS USED IN CHEMICAL WARFARE?

ANS: CHOKING, BLOOD, BLISTER, AND NERVE.

25. WHAT DETERGENTS ONBOARD SHIPS ARE EFFECTIVE FOR DECONTAMINATION OF CHEMICAL AGENTS?

ANS: SOAP, SUPER TROPICAL BLEACH AND CALCIUM HYPOCHLORITE (HTH).

26. WHAT TYPE OF AGENTS WILL THE GAS MASK PROTECTS THE WEARER FROM IN A CHEMICAL ENVIRONMENT?

ANS: INHALATION OF NERVE, BLISTER, CHOKING, BLOOD, VOMITING AND TEAR GAS AGENTS.

27. WHAT ARE THE PREFERRED METHODS OF DISSEMINATION AND DELIVERY OF BIOLOGICAL AGENTS?

ANS: 1.AEROSOL METHOD.

2.SMALL BOMBLETS.

3.SABOTAGE.

28. DESCRIBE THE MARKER USED TO INDICATE BIOLOGICAL CONTAMINATED AREAS.

ANS: A BLUE TRIANGLE WITH LETTERS "BIO" IN RED.

29. STATE THE PROTECTIVE MEASURES TAKEN FOR SELF-PROTECTION PRIOR TO A BIOLOGICAL ATTACK?

ANS: PERSONNEL HYGIENE, AREA SANITATION AND IMMUNIZATION.

30. ONCE A BW/CW AGENT HAS BEEN IDENTIFIED AND YOU EXPERIENCE SYMPTOMS OF EXPOSURE, WHAT THREE STEPS MUST YOU TAKE?

ANS: 1.SELF-AID.

2.PERSONNEL DECONTAMINATION.

3.SEEK MEDICAL ATTENTION.

31. WHO IS RESPONSIBLE FOR SETTING MOPP LEVELS?

ANS: THE CO OR THE TASK COMMANDER.

32. WHAT ARE THE ENVIRONMENTAL FACTORS THAT EFFECT BW/CW AGENTS?

ANS: 1.WIND.

2.PRECIPITATION.

3.TEMPERATURE.

4.RELATIVE HUMIDITY.

5.ULTRAVIOLET LIGHT.

33. WHAT IS THE PURPOSE OF MISSION ORIENTED PROTECTIVE POSTURE (MOPP) LEVELS?

ANS: MOPP PROVIDES A FLEXIBLE SYSTEM OF PROTECTION AGAINST CW/BW AGENTS CONSISTENT WITH THE CW/BW THREAT, THE WORK RATES IMPOSED BY THE SHIP'S MISSION, AND THE TEMPERATURE.



**\* CHEMICAL DETECTION AND SAMPLING KITS**

**M-8 PAPER**

34. WHAT CHEMICAL AGENTS WILL M-8 PAPER DETECT?

ANS: LIQUID V AND G NERVE, AND H-TYPE BLISTER AGENTS.

35. WHERE WOULD ONE FIND THE COLOR COMPARISON CHART FOR THE M-8 PAPER?

ANS: ON THE INSIDE FRONT COVER OF THE M-8 PAPER BOOKLET.

36. WILL M-8 PAPER DETECT AN AGENT IN THE GAS OR VAPOR FORM?

ANS: NO, M-8 PAPER WILL ONLY DETECT AGENTS IN THEIR LIQUID FORM.

37. WILL M-8 PAPER DETECT CHEMICAL AGENTS ONCE IT BECOMES WET?

ANS: YES, M-8 PAPER WORKS WHEN WET.

**M-9 CHEMICAL AGENT DETECTOR PAPER**

38. WHICH CHEMICAL AGENTS WILL M-9 PAPER DETECT?

ANS: G AND V NERVE, AND H AND L BLISTER.

39. HOW SHOULD M-9 PAPER BE STOWED AFTER IT HAS BEEN REMOVED FROM ITS ORIGINAL SHIPPING PACKAGE?

ANS: IN A MOISTURE-PROOF RESEALABLE BAG.

40. ONCE THE M-9 PAPER DISPENSER HAS BEEN REMOVED FROM THE SHIPPING BAG, WHAT MUST BE RECORDED ON THE DISPENSER?

ANS: THE CURRENT DATE TO DETERMINE ITS USEFUL LIFE.

41. WHEN HANDLING M-9 PAPER WHAT PROTECTIVE EQUIPMENT MUST BE WORN?

ANS: PROTECTIVE GLOVES.

42. WHEN POSTING M-9 PAPER, WHAT PRECAUTIONS MUST BE TAKEN TO PREVENT FALSE READINGS?

ANS: KEEP PAPER AWAY FROM HIGH TEMPERATURES (160 DEGREES OR ABOVE), DIESEL OIL AND OIL OF WINTERGREEN.

43. WHAT COLOR WILL M-9 PAPER TURN IF A CHEMICAL AGENT IS DETECTED?

ANS: ANY SHADE OF RED DOTS.

44. WHAT WILL CAUSE BLUE, GREY, YELLOW, GREEN OR BLACK SPOTS TO FORM ON M-9 PAPER?

ANS: EXCESSIVE MOISTURE SUCH AS RAIN OR DEW. F-76, JP-5 AND EVERGREEN.

45. HOW SHOULD M-9 PAPER BE ATTACHED AROUND OBJECTS?

ANS: ADHESIVE SIDE TO ADHESIVE SIDE WITH DETECTOR SIDE OUT.

46. WHERE SHOULD M-8 OR M-9 PAPER BE POSTED PRIOR TO AN ATTACK?

ANS: NEAR VENTILATION DUCTS, WATERTIGHT ACCESSES AND AS STATED IN SHIP'S CBR BILL.

#### **M-256A1 DETECTOR KIT**

47. WHAT IS CONTAINED IN THE M-256A1 DETECTOR KIT?

ANS: 12 SAMPLER-DETECTORS, 1 BOOK OF M-8 PAPER AND A SET OF OPERATIONAL INSTRUCTION CARDS.

48. WHAT CHEMICAL AGENTS CAN BE READILY IDENTIFIED BY USING THE M-256A1 DETECTOR KIT?

ANS: BLISTER, BLOOD AND NERVE.

49. WHERE CAN AN OPERATOR FIND THE COLOR CHANGES THAT INDICATE THE AGENT IS OR IS NOT PRESENT WHEN USING THE M-256A1 KIT?

ANS: PRINTED ON EACH SAMPLER-DETECTOR AND ON THE OPERATIONAL INSTRUCTION CARDS IN THE CARRYING CASE.

50. WHAT SHOULD BE CHECKED PRIOR TO OPENING A SAMPLER-DETECTOR KIT?

ANS: THE DISCARD DATE LISTED ON THE SAMPLER-DETECTOR BAG.

51. WHEN USING THE M-256A1 KIT, THE OPERATOR MUST PROTECT THE SAMPLER-DETECTOR KIT FROM WHAT ELEMENTS?

ANS: EXCESSIVE MOISTURE, WIND, AND DIRECT SUNLIGHT.

52. WHAT CAN TOUCHING THE SPOTS OF THE SAMPLER-DETECTOR IN A M-256A1 KIT RESULT IN?

ANS: A FALSE READING OR INCORRECT TEST RESULT.

#### **\* PERSONNEL PROTECTIVE EQUIPMENT**

##### **MCU-2/P GAS MASKS**

53. WHAT IS THE FUNCTION OF THE GAS MASKS?

ANS: PROVIDES PROTECTION TO THE FACE, EYES AND RESPIRATORY SYSTEM AGAINST ALL KNOWN CBR AGENTS.

54. WHICH STRAPS ON THE MASKS ARE LOOSENEED AND TIGHTENED EACH TIME THE MASK IS REMOVED AND DONNED?

ANS: ONLY THE TWO BOTTOM STRAPS.

55. WHAT IS THE EFFECTIVE LIFE OF THE GAS MASK FILTER CANISTERS?

ANS: 60 DAYS ONCE REMOVED FROM THE STOWAGE CAN IN A NON-CONTAMINATED ENVIRONMENT, 30 DAYS IN A CONTAMINATED ENVIRONMENT, AND ONE BLOOD AGENT ATTACK.

56. CAN THE GAS MASK BE WORN IN OXYGEN DEFICIENT ATMOSPHERES?

ANS: NO, THE GAS MASK DOES NOT PROVIDE THE WEARER WITH OXYGEN.

57. WHAT SHOULD THE WEARER OF THE MASK DO PRIOR TO USE?

ANS: SANITIZE AND INSPECT THE MASK FOR WORN PARTS.

**CHEMICAL PROTECTIVE OVERGARMENT (CPO SUIT)**

58. WHAT IS THE WEAR LIFE OF THE CPO SUIT ONCE REMOVED FROM ITS' PROTECTIVE BAG?

ANS: 30 DAYS OR 100 HOURS WHICH EVER COMES FIRST IN A NON-CHEMICAL ENVIRONMENT.

59. ONCE EXPOSED TO A CHEMICAL ENVIRONMENT, HOW LONG WILL THE CPO SUIT PROTECT THE WEARER?

ANS: SIX HOURS.

60. WHAT PROTECTION IS PROVIDED TO THE WEARER OF THE CPO SUIT?

ANS: THE CPO SUIT PROTECTS THE WEARER AGAINST ALL CHEMICAL AGENTS.

61. BEFORE ENTERING A CONTAMINATED ENVIRONMENT, WHAT SHOULD THE WEARER OF THE CPO SUIT CHECK?

ANS: CHECK TO ENSURE THAT NO SKIN IS EXPOSED AND THAT YOU ARE ABLE TO MOVE FREELY WITHOUT THE SUIT BINDING OR PULLING APART THE FASTENERS.

62. WHAT CAN BE WORN WITH THE CPO SUIT TO ENHANCE ITS CAPABILITIES?

ANS: WET WEATHER GEAR.

63. HOW LONG WILL THE GLOVES AND BOOTS WORN WITH THE CPO SUIT PROTECT THE WEAR IN A CHEMICAL ENVIRONMENT?

ANS: 6 HOURS, GLOVES & BOOTS MAY BE DECONTAMINATED & REUSED PROVIDED THEY ARE NOT DAMAGED.

**\* PERSONAL DECONTAMINATION**

**M-291 DECON KIT**

64. HOW DOES THE M-291 DECON KIT DECONTAMINATE?

ANS: THOROUGH PHYSICAL REMOVAL, ABSORPTION, AND NEUTRALIZATION.

65. WHAT PRECAUTIONS MUST BE TAKEN WHEN USING THE M-291 DECON KIT?

ANS: FOR EXTERNAL USE ONLY, KEEP DECON POWDER EYES, CUTS AND WOUNDS. DECON FACE AS QUICKLY AS POSSIBLE, AVOID INHALING THE POWDER.

66. HOW MANY PACKETS ARE IN THE M-291 DECON KIT?

ANS: SIX, ENOUGH FOR THREE COMPLETE SKIN DECONTAMINATIONS.

**\* SELF-AID/BUDDY-AID**

67. WHAT ARE THE FIRST SYMPTOMS OF NERVE AGENT POISONING?

ANS: UNEXPLAINED NASAL SECRETION, TIGHTNESS OF CHEST, SHORTNESS OF BREATH, CONSTRICTION OF PUPILS, MUSCULAR TWITCHING OR NAUSEA AND ABDOMINAL CRAMPS.

68. WHAT DEPARTMENT IS RESPONSIBLE FOR THE IDENTIFICATION OF BIOLOGICAL WARFARE AGENTS?

ANS: MEDICAL.

69. WHAT IS THE SELF-AID FOR BLOOD AGENTS?

ANS: DON MASK IMMEDIATELY AND SEEK MEDICAL AID.

70. WHAT IS THE SELF-AID FOR BLISTER AGENTS?

ANS: EYES SHOULD BE FLUSHED WITH CLEAN WATER AS SOON AS POSSIBLE, USE THE M-291 DECON KIT WITH SOAP AND WATER FOR SKIN.

71. HOW MANY AUTO-INJECTORS OF ATROPINE AND 2 PAM CHLORIDE ARE ISSUED TO EACH PERSON AT THE THREAT OF A CHEMICAL ATTACK?

ANS: THREE ATROPINE AND THREE 2 PAM CHLORIDES.

72. ATROPINE AND 2 PAM CHLORIDE ARE ONLY USED AFTER EXPOSURE AND SYMPTOMS OF WHAT CHEMICAL AGENT?

ANS: NERVE AGENT.

73. WHAT ARE THE SYMPTOMS CAUSED BY BLOOD AGENTS?

ANS: DIFFICULT OR RAPID BREATHING, HEADACHE, NAUSEA, DIZZINESS AND VIOLENT CONVULSIONS.

74. WHAT ARE THE PHYSICAL SYMPTOMS CAUSED BY BLISTER AGENTS?

ANS: PAINFUL WATERY EYES, REDNESS OF SKIN FOLLOWED BY  
BLISTERING.

\* CHEMICAL WARFARE DIRECTIONAL DETECTOR (CWDD) AN/KAS-1

75. WHAT IS THE PRIMARY USE OF THE AN/KAS-1?

ANS: IT IS USED TO DETECT NERVE AGENT ATTACKS.

76. WHAT IS THE SECONDARY USE OF THE AN/KAS-1?

ANS: IT CAN BE USED IN LOW VISIBILITY/NIGHT PILOTAGE AND  
AREA SURVEILLANCE.

77. WHILE USING THE AN/KAS-1, HOW MANY FILTERS SHOULD THE  
OPERATOR USE?

ANS: THE CLOUD SHOULD BE OBSERVED WITHOUT A FILTER FIRST,  
THEN OBSERVED THRU THREE FILTERS IN THE UNIT.

78. HOW MANY CYCLES MUST THE OPERATOR OF THE AN/KAS-1 OBSERVE  
PRIOR TO MAKING A CONFIRMATION ON A NERVE AGENT CLOUD?

ANS: AT LEAST SIX CYCLES.

79. IF THE CLOUD UNDER OBSERVATION IS NOT A NERVE AGENT, WHAT  
SHOULD THE OPERATOR OF THE AN/KAS-1 DO?

ANS: CONTINUE CHECKING OTHER SUSPICIOUS CLOUDS.